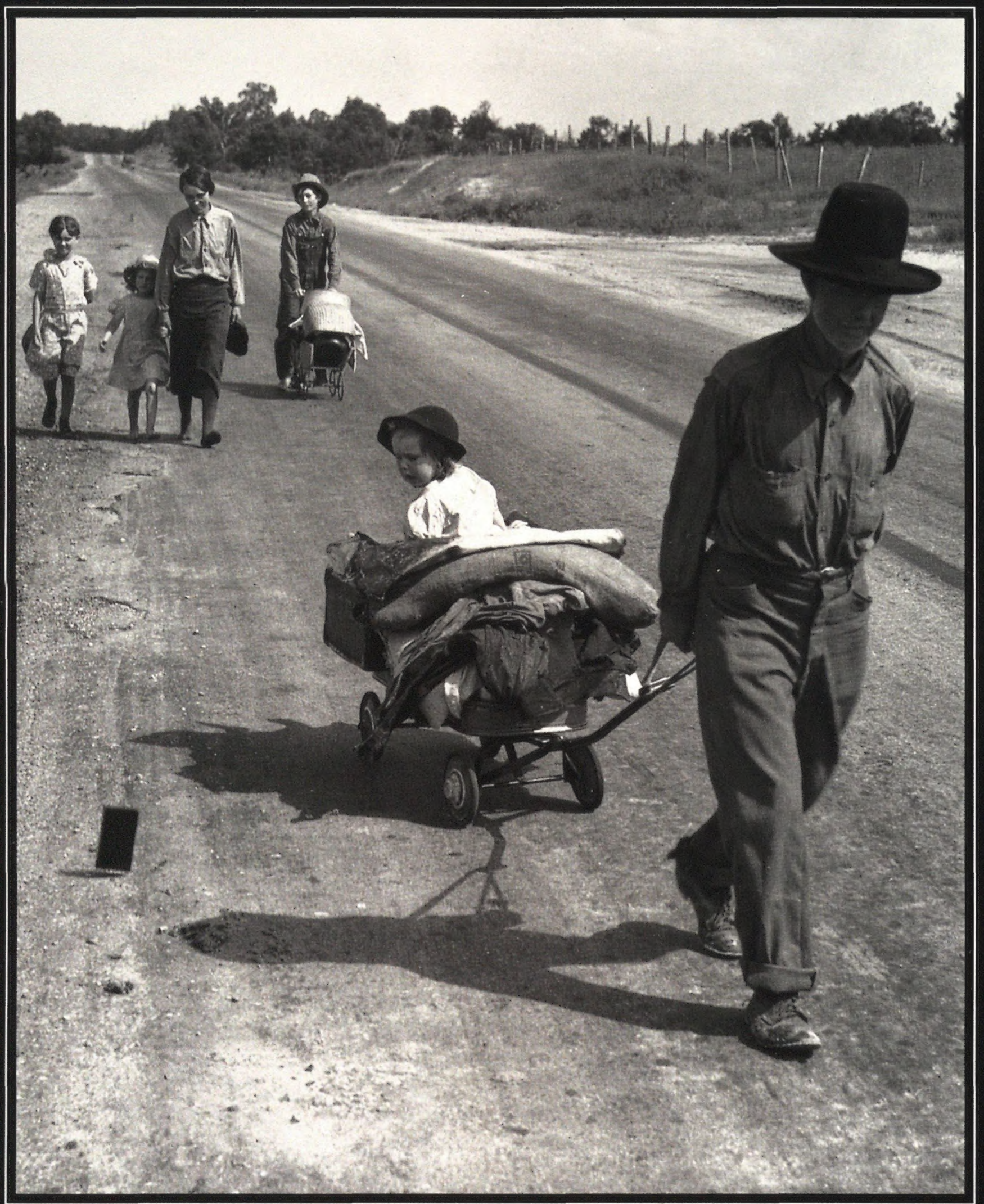
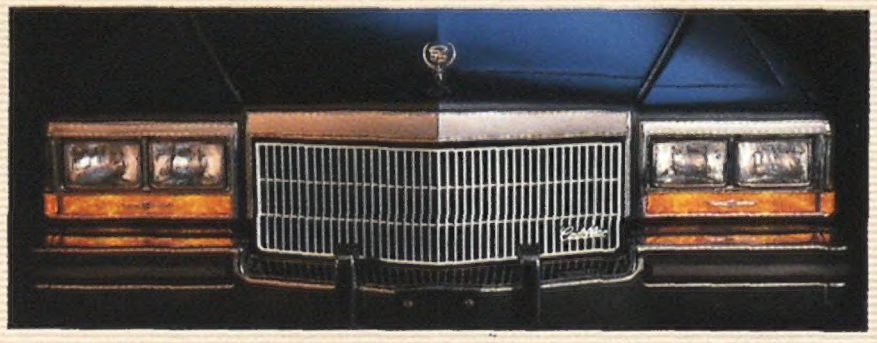
Smithsonian

June 1989



In a historic Dorothea Lange photograph, a homeless Oklahoma family walks a long, hard road during Dust Bowl days (p. 44)



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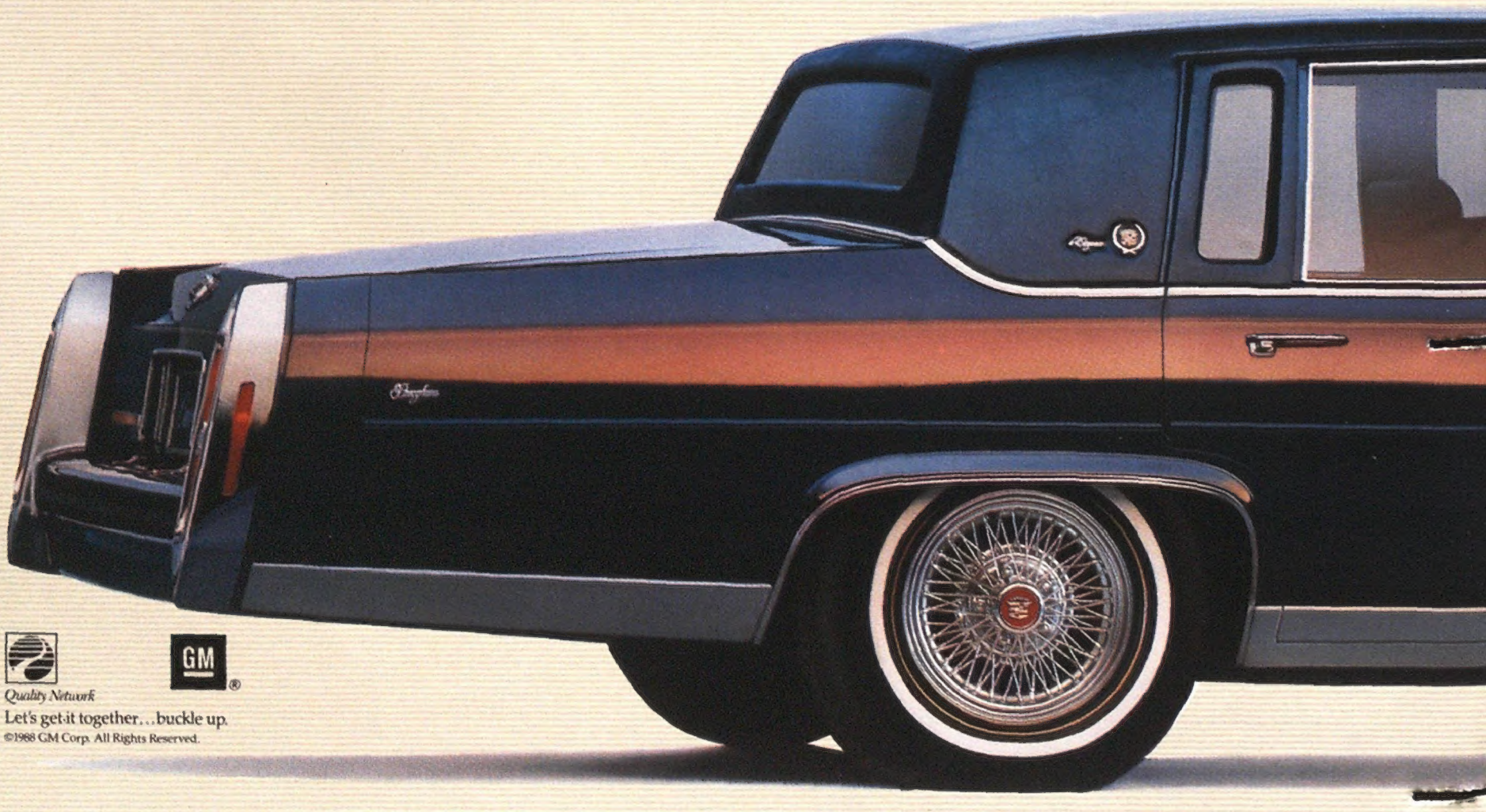

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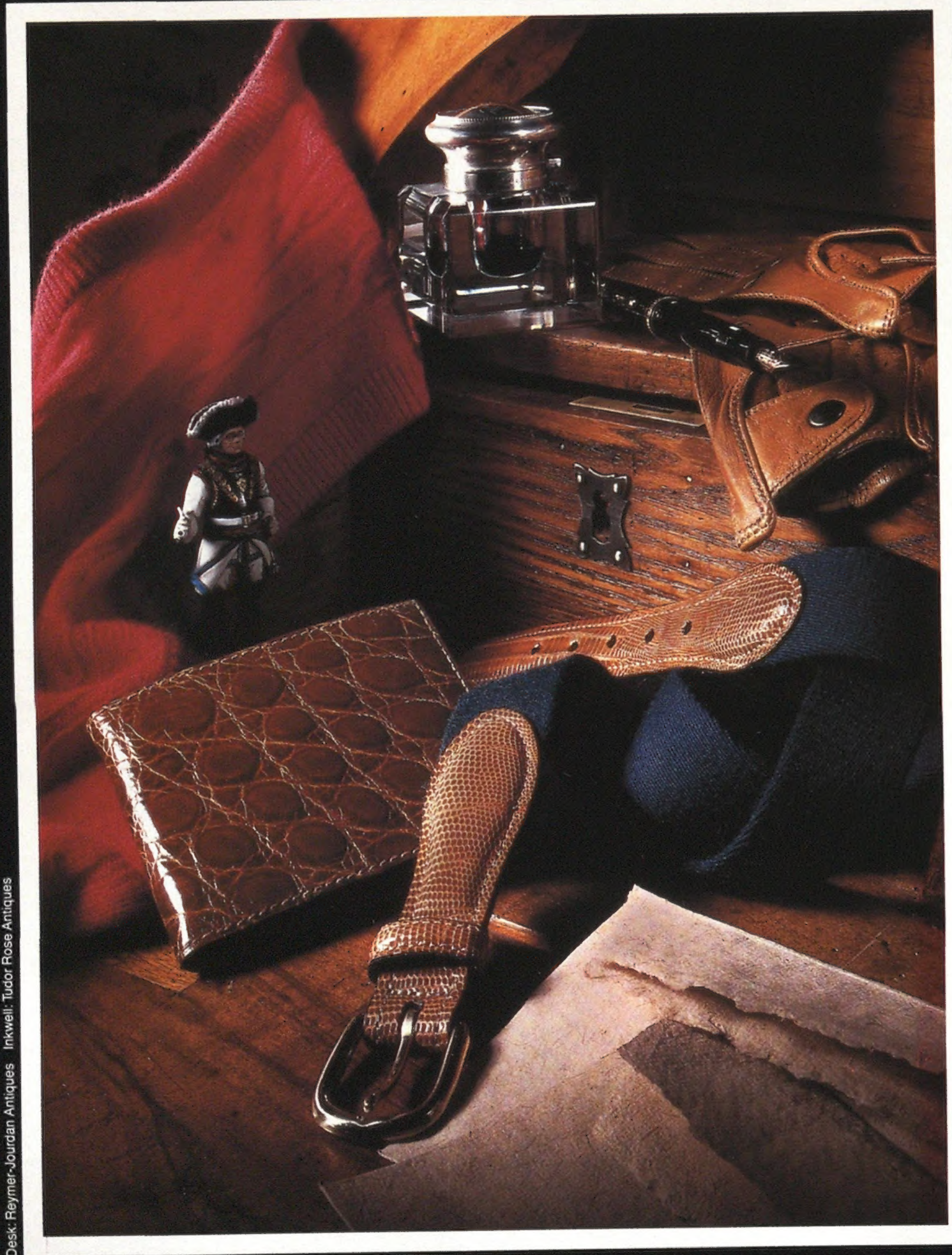

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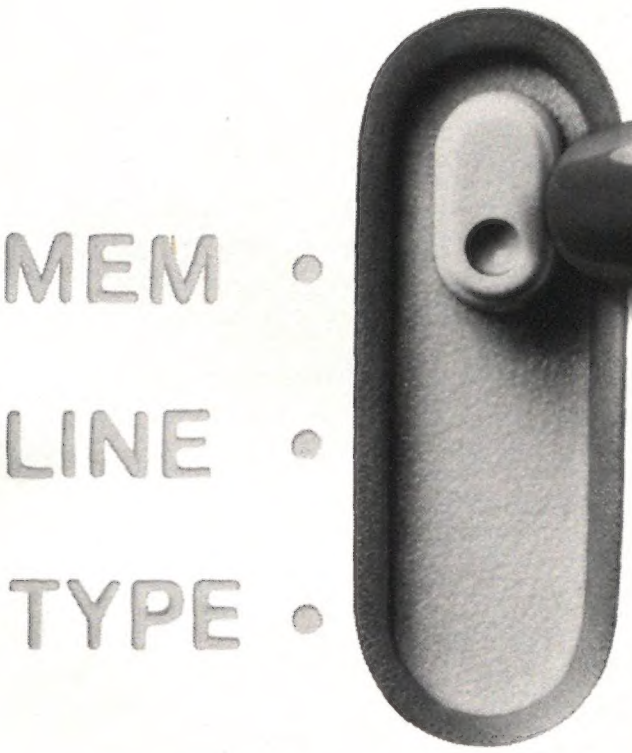

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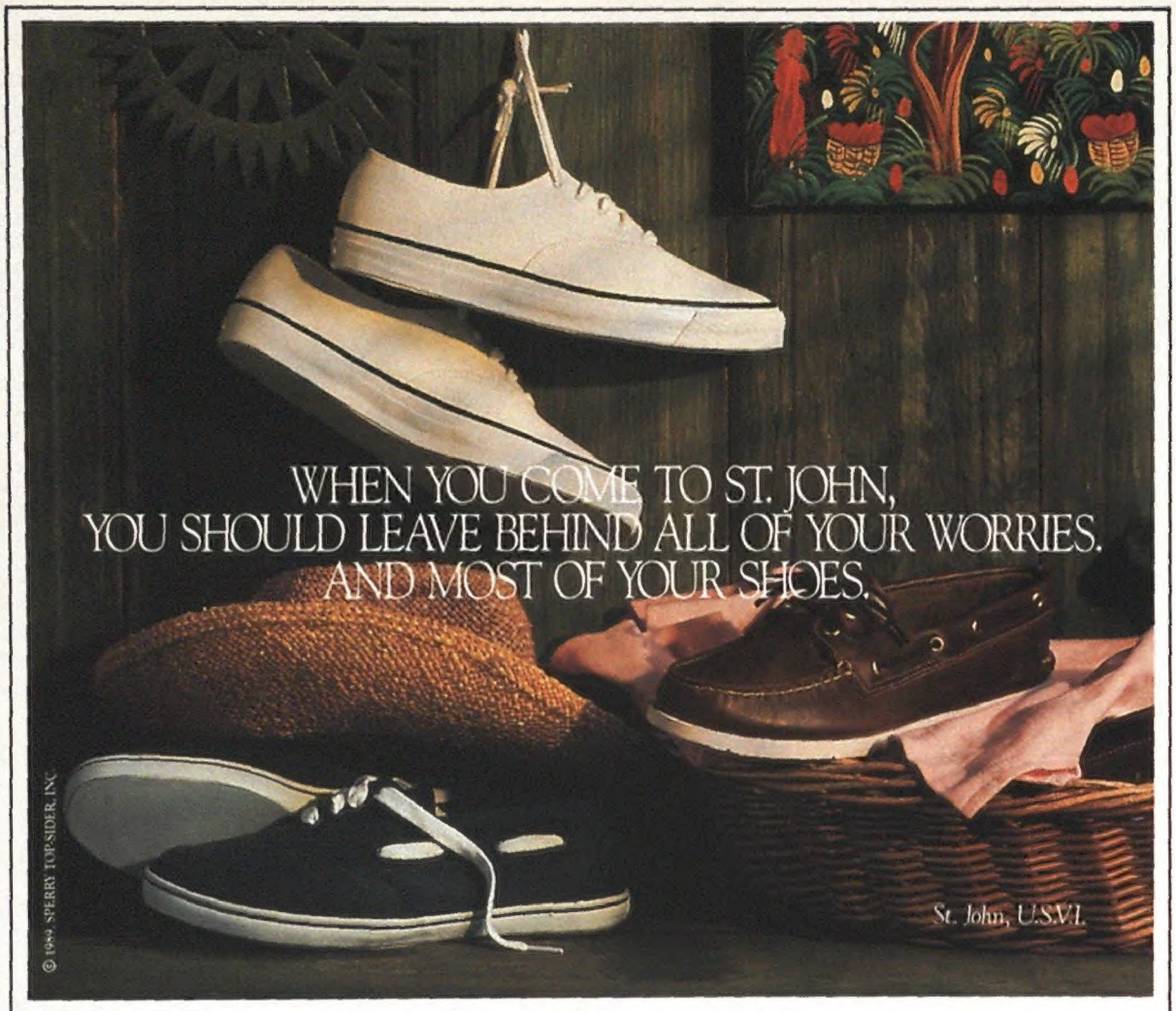
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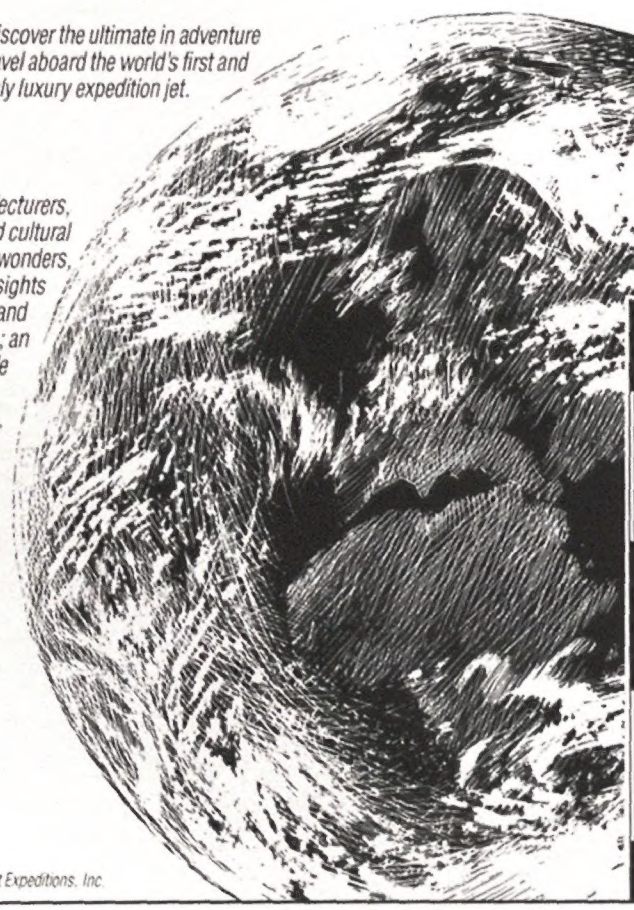

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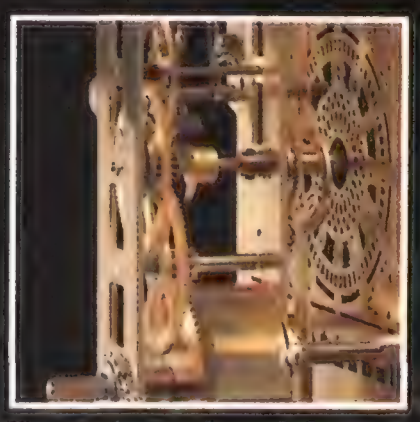

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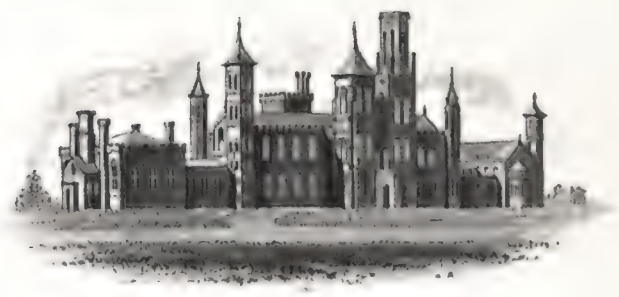


Smithsonian horizons

Discussions in the USSR between a group of Americans and their Russian counterparts demonstrate how much times have changed

Explorations of possibilities for new exhibitions sometimes can both liberate and concentrate the mind. Those that we have recently begun with the Soviet Ministry of Culture, still unconstrained by any dreary realities like space, time and cost, look back upon the whole of the 20th century—and forward into the next.

At the Ministry's invitation, an American delegation of scholars, critics and creative artists recently pursued this question with a group of their Russian counterparts in the ancient monastery town of Suzdal. It is gratifying but not surprising that a theme of this scope, even if we ultimately find it unrealizable, produced a transcript of the first encounter (there will be more) that is already a visionary document.

I have heavily edited the following brief excerpts for greater intelligibility and continuity, while trying not to alter the substance. Only the nationality of the speakers is indicated (*A* for American, *S* for Soviet), and it will quickly be seen that this is no longer a clearly distinguishing characteristic. In their extraordinary candor and hopefulness, all the comments are testimony to the vast sea change that has enveloped the times in which we live.

S: We foresee a mix of art, music, architecture, theater, literature, cinema and other elements.

A: From the best known, most practical and pragmatic to the most philosophical and visionary points of view, and everything in between. Our ideal audience should be everybody, from the most sophisticated to the most culturally illiterate, to be suddenly informed, an epiphany, a revelation about certain things which that person wasn't even remotely able to understand.

S: A live organism, a kind of intellectual action taking place in space and time whose main goal is strengthening the confidence and mutual understanding between our people. . . . We can hardly call it an exhibition, maybe it's a festival.

S: A place where children can have fun.

A: An intellectual world's fair where separate pavilions are dedicated to concepts rather than countries.

S: The goal is to achieve a dialogue, reach an understanding. A popular Russian saying goes, "To understand is to pardon." In recent history, a want of understanding prevented pardon.

A: We should enter the hall of mirrors of the relations between two great nations that have radically misunderstood each other.

S: Of central importance to our story is the colossal shift away from seeking solutions by war, as was natural at the century's start. Now we have to think about how to fill lives with optimism and with a will to preserve the whole world.

A: Whether celebration or criticism, carnival or irony, by all means let us take heart that we are alive, alive to tell the story, to tell it together. But the 21st century will think us monstrous liars if we do not testify to all the atrocities we have committed, all the wars and cataclysms for which we are responsible. So let us have irony, let us have self-criticism, let us even have self-indictment where it is necessary.

S: Our century has been saturated with events, discoveries, unexpected happenings, full of contradictions, harmony and no harmony, progress and regress. A historical approach . . . will let us answer questions about what we face at the end of the century. Who are we, where do we come from and where are we going?

A: We have to tell our story so it is faithful to our memory, enjoyable to our senses and honorable to our

descendants. This means the story we tell may be pluralistic, multiple, even contradictory.

A: Begin with ideas, with our self-consciousness as moderns. An emblematic phrase such as Rimbaud's "*Il faut être absolument moderne*" can be our opening.

S: Pit the old avant-garde against the modern, and the same for commercial art.

A: The idea of modernity arises out of the definitions of modernity that the arts of the time gave it. I'd vote for the late 1880s myself.

S: In this undertaking we should be careful that the different arts supplement one another and not be separate islands in the sea.

A: We've mentioned irony. There tends to be a polarity between irony in "high" culture and earnestness in "low."

S: We must find a place for irony. How absurd our estimations of each other used to be in the past! After a two-month visit to the United States 35 years ago, I thought I was an expert. Now I can see I knew practically nothing. . . . People will be more receptive if there is irony.

S: If we speak the truth about ourselves, people will be more ready to believe us than if we lecture our audiences about the bright future we're striving for. That word "lecture" now has an ironical flavor in Russian, if not in English.

A: Adversarial positions and activities should have a place; they are a very important part of our culture. Elite versus popular is one, but there is also opposition between official and, if you will, subversive culture. Thus we can expose the awful quality and philistinism of official art.

S: For us, the period from the 1930s into the '50s was the most cruelly engaged period of Soviet art.

A: Art's legitimating function, in relation to cultural content as well as authority, needs to concern us. That applies also to the uses and exploitation of history.

S: I am much taken with an image linking the sun, liberty and a tiny flower as Man's most basic needs. All, repeat all, Soviet and Russian literature should be represented: samizdat [underground], émigré, Nabokov, Solzhenitsyn. There's nothing unusual about this suggestion, nothing shocking or surprising.

A: A general treatment of émigré and exiled artists will help to underscore the international prevalence of this problem, and of sensitivity to it. Then we must face the challenge of diversity, of many subcultures in one framework.

A: We cannot leave out the impact on the world of injustices to minorities, and of the special burdens of women. My drive to write was probably to avoid getting on a soapbox [translation problems!] about a dominant culture that was largely white, male, Protestant and Western European.

A: Treating a work of art as only a document of special forces or events can vulgarize it and annihilate important parts of its meaning. We have a difficult road to tread here. None of us can be immune to the ironies implicit in the possible situation that all the Marxists in the room will argue for pure esthetic experience, while all the capitalists argue for the importance of seeking social meaning in the arts.

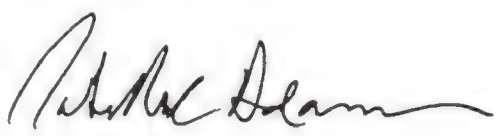
S: We should aim at an evolutionary account.

A: To the contrary, I'm deeply skeptical about tracing progress and evolution in the visual arts, especially since the U.S. and the USSR have believed more than other nations in the myth of progress. Be fairly precise and undeceived about such cloudy notions as progress and communication. Art is the product of individuals moving in space, rather than under communal will. . . . We must touch on the problem of boundaries between the public and the private.

S: But remember that myths, too, have a place—in our case, especially those of the 1930s into the '50s. A large part of Soviet culture has been used to illustrate that time as a golden age—for example, the myth about liberated labor. I have a vision of an exhibit concerned with that.

A: Do not overlook technological myths either. I would fill a room with the technology of reproducing and disseminating art: television, radio, sound, lasers, polygrams—everything in a kind of confusion and overloaded with information. And then move from this into another space, another room of spiritual longing, spiritual desires, with two paintings—Malevich's *Black Square on a White Ground* on one side and a Rothko on the other ["*Eto khorosho*" ("That's good") can be heard in the background].

A: The shadows across past relations between our two countries might be recalled more vividly with a film clip of Greta Garbo in *Ninotchka.* Unable to fulfill her mission of retrieving some White Russian jewelry, she intones: "In Russia, we have the truth, but in Paris, you have the spring." This deeply depressed me when I was young. I want this exhibit to be about the question, Do we have to make such a choice?



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Letters to the Editor

John Dobson

Dear Sir: Your April article conjured up memories of a stroll along San Francisco's waterfront one evening in 1971. My college date and I happened upon a line of people waiting to climb a rickety ladder to peer into a monstrous homemade telescope. An older gentleman with a long ponytail was steadying the ladder with one hand while looking about, waving to passers-by to "Come and take a look at Saturn!" Eventually it was my turn, and the image of that beautiful planet, suddenly suspended so close, will remain with me always. We spoke briefly, and the gentleman said he had just received a ticket for illegal parking while unloading his telescope. I could tell that hurt.

Over the years I have retold this story to friends and children as a delightful mystery lost in my youth—and now it is finally solved by your article. For all his poverty, this man Dobson is rich beyond measure.
Timothy White
New Boston, New Hampshire

Dear Sir: I have been using a 13-inch version of that celestial rapscallion, genius and inventor's telescope for several years now on my hospital's roof, in a successful effort to avoid insanity while waiting to deliver babies.
Peter M. Wisniewski, M.D.
Philadelphia

Dear Sir: John Dobson is a National Treasure. Why doesn't the United States come up with a way to preserve people like him, as do the Japanese?

At a time when this society seems obsessed with possessions and wealth, we should extol the virtues of this type of creative and altruistic soul.

The man you describe seems at peace with himself, his God and the Universe. How many people do we run into these days who are at peace with anything?
Mark A. Else
Somerset, New Jersey

Hong Kong

Dear Sir: I was appalled to see how Stanley Karnow painted the British opium smugglers of early Hong Kong in the best possible light, by portraying them as swashbucklers instead of as the purveyors of human misery that they really were. Opium smuggling was just as much against the laws of the Chinese empire as cocaine smuggling is against the laws of the United States today, and the presence of widespread corruption among Chinese officials did nothing to justify it.
Wade Hampton Miller
Anchorage, Alaska

Dear Sir: Yes, Mr. Karnow, a delicatessen does exist in Hong Kong.

While living in Japan, we took a tour of that city in November 1981. Imagine our surprise when in our wanderings we came across the Beverly Hills Deli, whose motto was "Enjoy, Enjoy." The menu was extensive; everything from potato latkes to pastrami and corned beef sandwiches to scrambled eggs with lox and onions.

It was a bit of home away from home.
Anita Mandel
Sepulveda, California

Thomas Hart Benton

Dear Sir: On display in the executive offices of Kansas City Power and Light Company is Mr. Benton's original art for the cover of that company's 1952 annual report. As director of public information for the utility, I met with Benton to discuss the cover subject. He told me that since it would be his first "commercial" job he was uncertain as to what to charge us. We agreed eventually on a fee of $500—but so pleased were we with the final art that we paid him $750. Benton told me only a few years later that his works of that size were selling for as much as $6,000.

The principal figure in the cover design is that of a sturdy young lineman [above]. In retrospect, how dumb I was in not picking up off the floor the great number of pencil sketches Benton made of the lineman model one afternoon!
James M. Stafford jr.
Little Rock

U.S. Marshals

Dear Sir: Mr. Jackson quotes historian Calhoun as labeling Wyatt Earp "a bum." How many peace-loving citizens would have wanted to live in Wichita, Tombstone and other early Western cities before the services of Wyatt?

My uncle Joseph Park visited Earp in 1888 and wrote: "I had heard and read a lot about Wyatt and wanted to see and talk with him. I found him reticent to converse about his exploits. He was a quiet man, always carefully dressed, and carried an air of authority. I found him genteel but firm."

A boxer as a youth, at 20 he refereed bouts between boxers from different camps. Bat Masterson named Wyatt the best poker player he had ever seen, and said he revealed a sharp sense of humor.
James Park
Rockport, Kentucky

Dear Sir: It was the cavalry to the rescue. We of the Army's 716th Military Police Battalion were called to assist the besieged federal marshals during the riotous Ole Miss crisis.

I still recall vividly the emotional relief exhibited by those battle-weary marshals when we came upon the scene. The surrounding campus resembled nothing less than a war zone.

Ultimately we combined forces to form a protective unit, whose sole mis-

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sion was to insure Mr. Meredith a college education.

That historical experience effectively sharpened my appreciation for the values of comradeship, patience and constraint.
Chet Kurowski
Marlboro, New Jersey

Dear Sir: The U.S. Marshals Service should be proud of the two Earps, Wyatt and Virgil. Following the O.K. Corral gunfight, the Tombstone judge and mayor, as well as officials of Wichita and Dodge City, Kansas, said that the Earps had the support of all good citizens. Court records stated that "Wyatt Earp was a good and efficient officer, was well known for his honesty and integrity, his character was of the best, and no fault was ever found with him as an officer, or as a man. He only took life in the discharge of his sacred trust to the people."

Lies about the Earps have emanated from the Tombstone outlaw rustler gang and crooked government officials.

After becoming U.S. Deputy Marshal in 1881, Wyatt had three choices: to break the back of the rustler gang, to leave the area or to be assassinated. Wyatt wanted to proceed legally; the judge gave him warrants. Wyatt formed and paid a posse with money given him, and put an end to the organized activities of the rustler leaders.

He was a lawman for only 5 of his 80 years. Mainly a businessman with many occupations, he was also a church deacon and occasionally a gambler—a respected profession in the Old West.
M. L. Matson, President
Wyatt Earp Birthplace, Inc.
Historic House Museum
Monmouth, Illinois

Dear Sir: In addition to having been organized by the U.S. Marshals Service, the exhibit "America's Star" is being circulated by the Smithsonian Institution Traveling Exhibition Service. SITES exhibits travel throughout the United States and abroad [see *Highlights*, page 178].
Eileen Rose
Project Director, SITES
Washington, D.C.

A paean to Kansas

Dear Sir: Gordon Parks is the pride of Kansas. Photographer, creator in arts, music, dance, film—we claim him as a native. Robert Day, whose article featured our heroine Carry Nation, was

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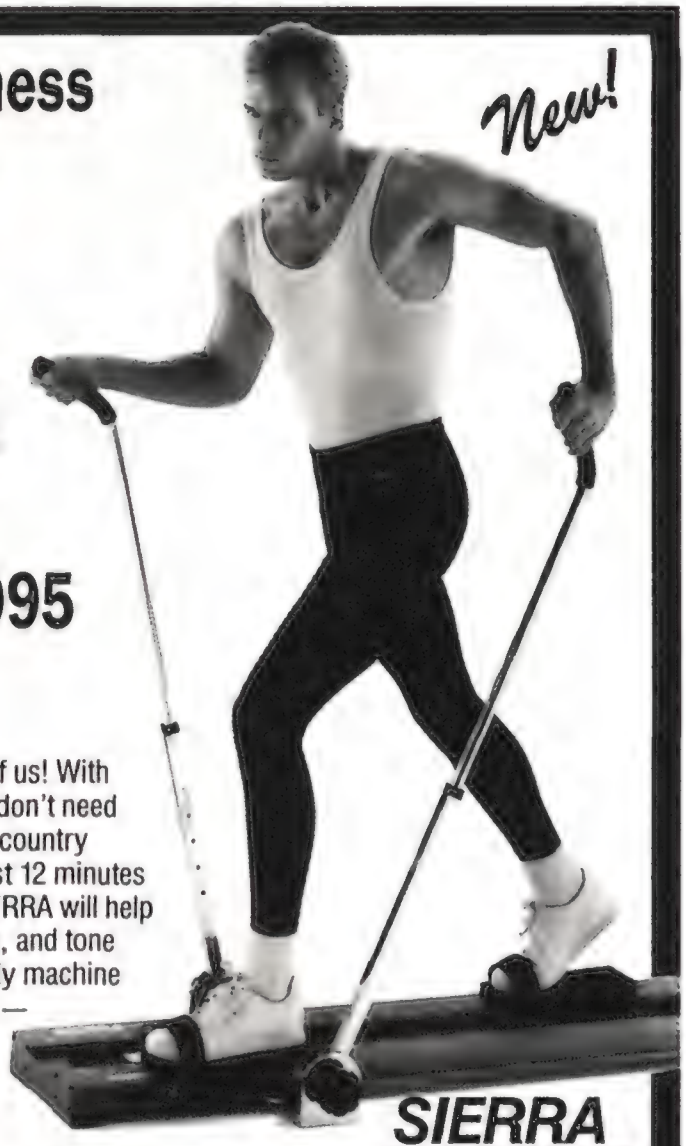

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The Danbury Mint

Shown slightly smaller than actual height of 5¼" including base.

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Gliding In by David Maass

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author-in-residence at the University of Kansas a few years ago. Thomas Hart Benton has murals in our post offices, courthouses and state buildings, and there is a current exhibition of his work in the Nelson-Atkins Museum of Art in Kansas City, Missouri (well, it *is* just across the river from Kansas).

We have wheatfields of golden grain, cattle that graze the plains, black oil and white salt underneath the farmlands, and people like Gordon Parks, Thomas Hart Benton, Carry Nation and Robert Day—the people of the prairie.

Kansas is the pot of gold at the end of Dorothy's rainbow. We have always known it.
Clara Belden
Sterling, Kansas

Dear Sir: The caption on page 69 refers to "Springfield, Connecticut." Did you not mean "Springfield, Massachusetts"?
Frederick C. Juul
Glastonbury, Connecticut
Indeed. Apologies to both states. Ed.

Carry Nation

Dear Sir: Carry Nation was not the first woman to demolish a saloon. In April 1875 a company of ladies headed by Mrs. Sarah Malone and Mrs. Jane Kibby marched to a saloon in Clinton, Vermillion County, Indiana, while one of the proprietors was incarcerated (for a long-forgotten infraction), and demolished everything containing intoxicating liquor.

Mrs. Malone and Mrs. Kibby were sisters of my great-grandfather Samuel Van Nest.
Arden L. Van Nest
Indianapolis

Dear Sir: I was disturbed that your article did not make clear the position on alcohol of Mothers Against Drunk Driving. One of our biggest obstacles has been correcting the myth that MADD is against drinking. All we ask is that a driver refrain from drinking and that a drinker refrain from driving.
Donna Frasalla, Founder
Broward County MADD
Fort Lauderdale

Bear watching

Dear Sir: Growing up in the upper Midwest I had considerable experience with bears, including hunting them. Those I

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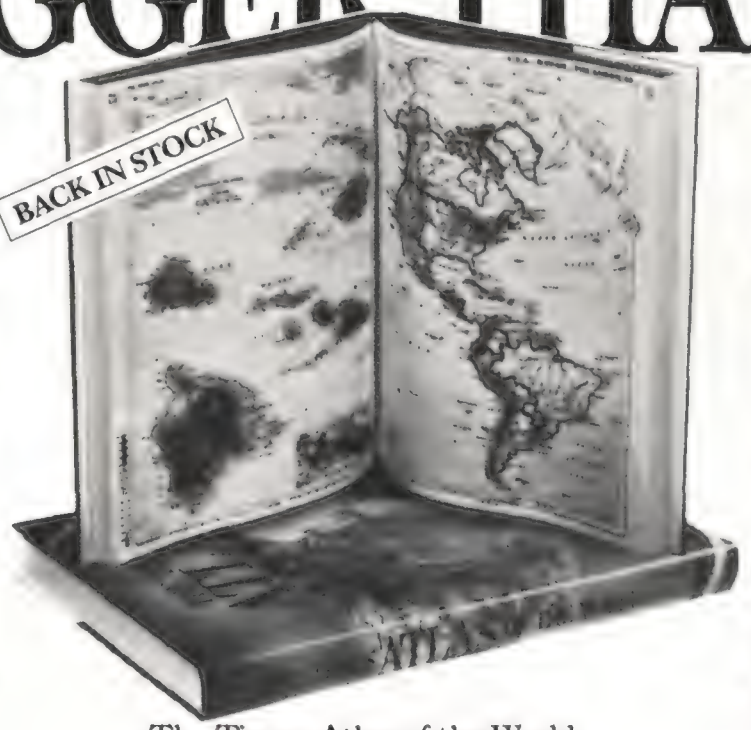

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dealt with were more like 600 pounds maximum. Nevertheless, I learned a valuable lesson: stay as far away from them as you can.
John Waugen
Anaheim, California

Dear Sir: It grieves me to know that these same beautiful brown bears will be among the many victims of Man's ceaseless attempts to enrich his lot at the expense of our wildlife. Of course I am referring to the disastrous Exxon oil spill off Alaska's southeast coast.

Once these magnificent creatures cannot find enough salmon or other fish to sustain themselves, the scope of this destruction will become numbing.
Joseph Striano
Brooklyn, New York

Russian churches

Dear Sir: The tower pictured on page 136 of my article is not the entrance to Ferapontov Monastery, but rather the entryway to the Pechory Monastery at Pskov. Also, the child on page 142 was christened at the *Pokrovsky* Cathedral of the Old Believers.
James H. Billington
Librarian of Congress
Washington, D.C.

Phenomena

Dear Sir: John Wiley's vivid description of the anatomical effect of smoking calls to mind words on the subject printed almost 400 years ago. James I in his *A Counterblaste to Tobacco* (1604) wrote that autopsies revealed "an unctuous and oily kinde of soote . . . found in some great tobacco takers."

The king, who was vehemently opposed to smoking, blamed Sir Walter Raleigh for its popularity, calling him the father and first author of the practice. The short-lived colony Raleigh planted in Virginia failed, but a book about it dedicated to him and describing the Indians' use of tobacco became a best-seller in four languages.

Wiley includes headaches in his list of withdrawal symptoms. Raleigh, too, had headaches. According to an anonymous manuscript in the British Library, one morning while a prisoner in the Tower of London he awoke with "an intolerable paine in his head and taking tobacco it vanished away quickly."
Evelyn Sharp
Tulsa

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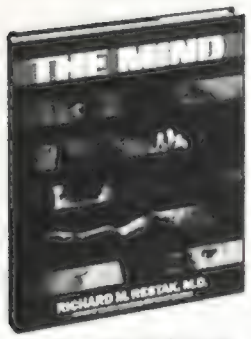

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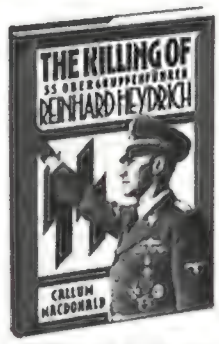

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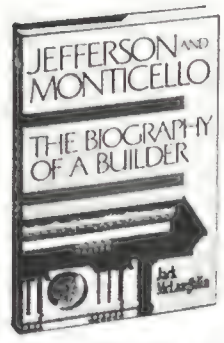

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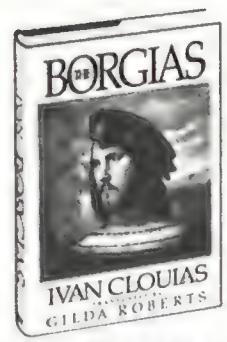

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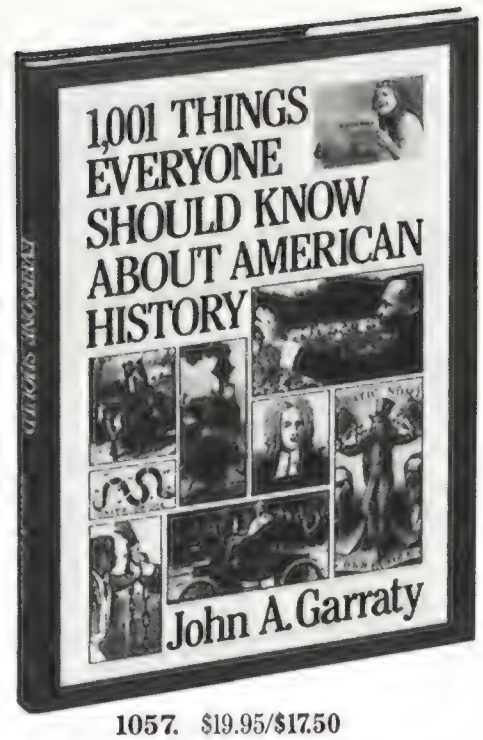

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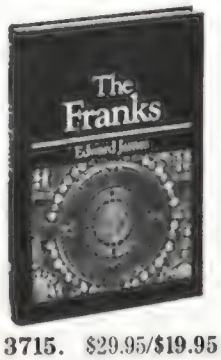

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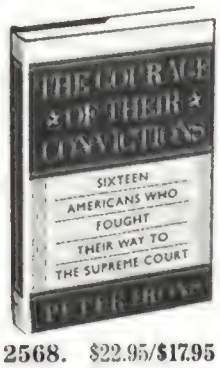

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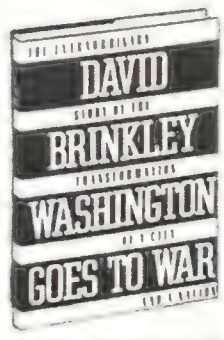

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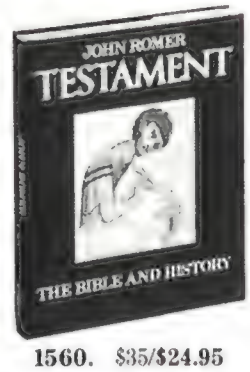

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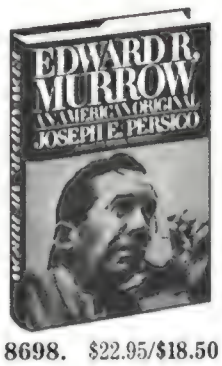

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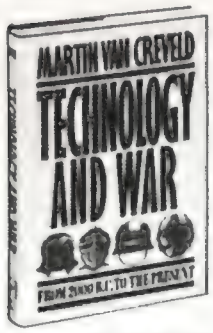

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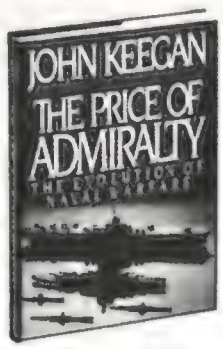

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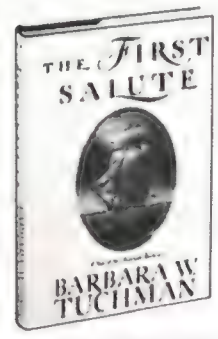

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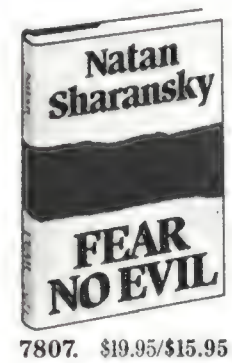

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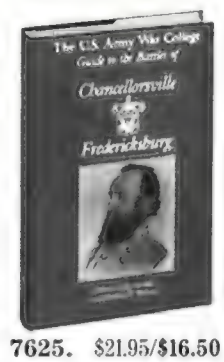

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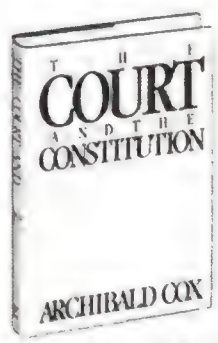

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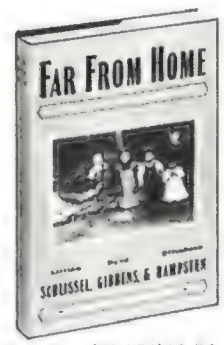

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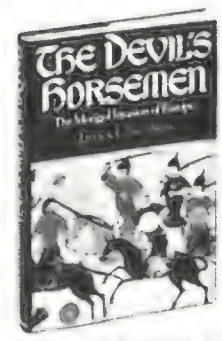

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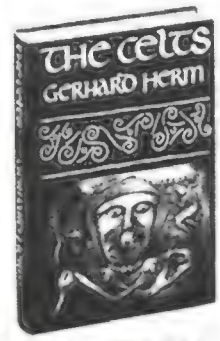

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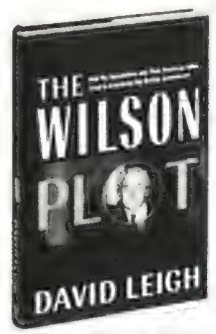

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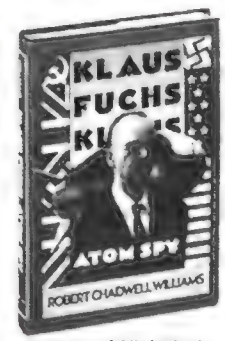

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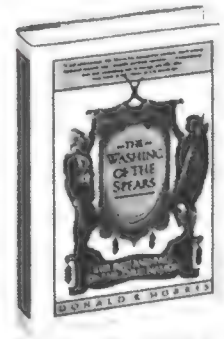

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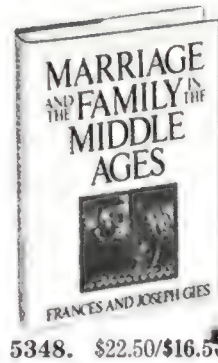

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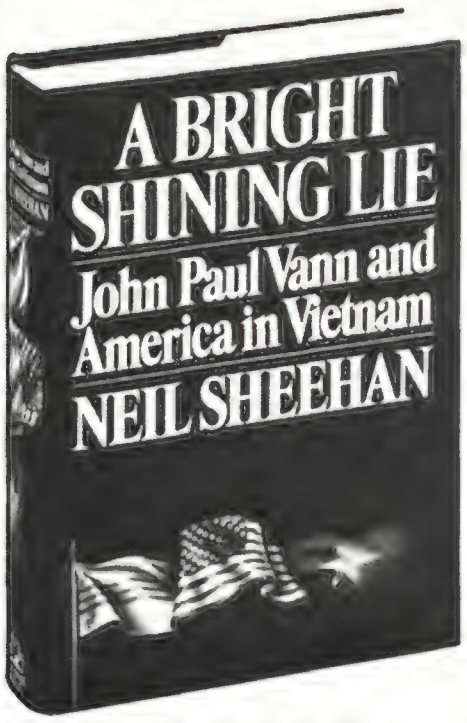

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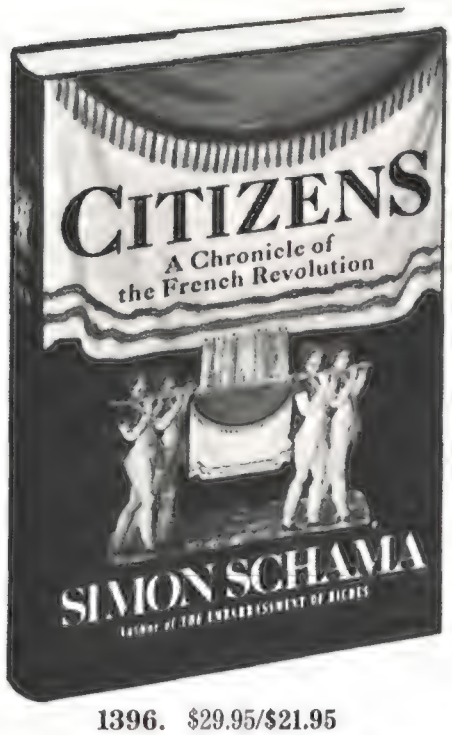

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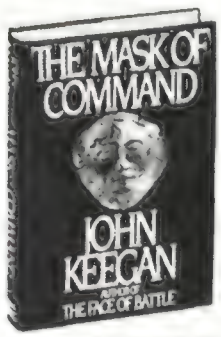

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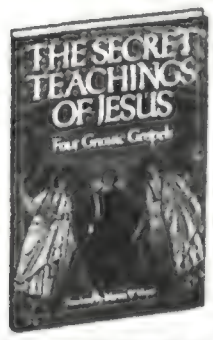

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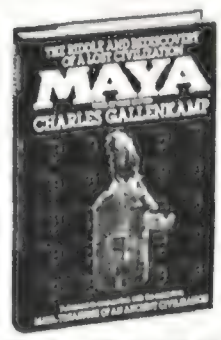

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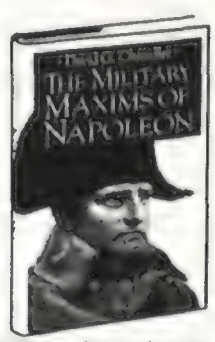

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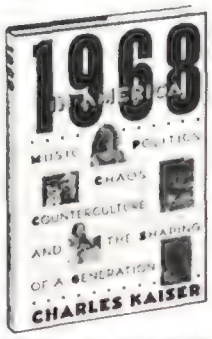

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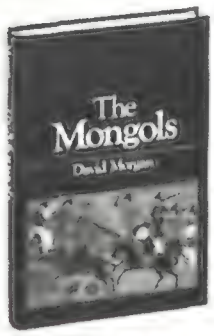

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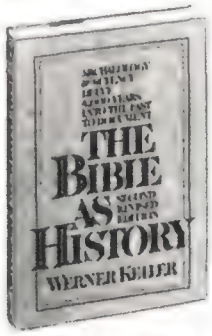

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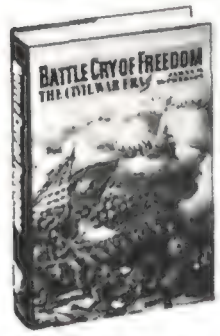

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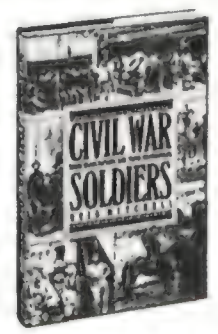

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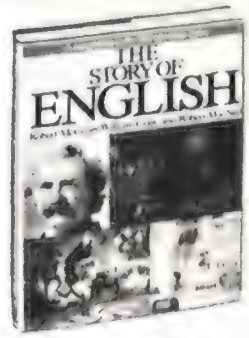

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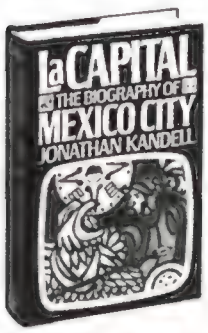

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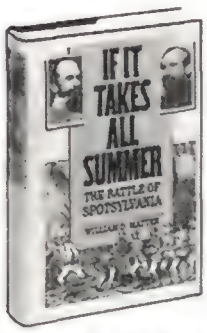

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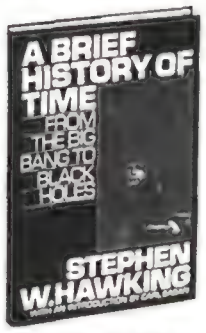

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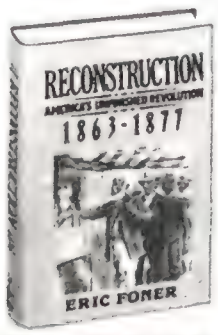

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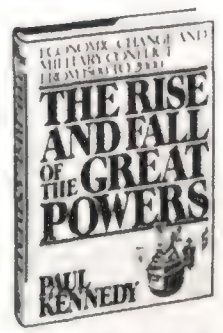

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Around the Mall and beyond

Maybe you think the experts at the Smithsonian know everything. But I've found that no one knows exactly who planted the late, lamented linden tree in the northeast corner of what is now the Enid A. Haupt Garden. They can't even tell you the precise year that the old, beloved landmark started life. Most of the trunk was too hollow to allow a count of its annual rings. "Some staff members planted it about a century ago" is all they can say.

Were the planters, I wonder, members of Secretary Spencer Baird's loyal coterie of young scientists, memorializing him after his death in 1887? Or were they aides of Samuel Pierpont Langley, keynoting a new look for the Castle grounds as he settled in as the third Secretary? After all, it was Langley who, in 1900, set up the recently restored Children's Room inside the Castle's south door (*Mall,* January 1986). He liked such things as trees and birds.

Or was it a bunch of ordinary Smithsonian gofers, working away in the Castle or the then new Arts and Industries Building? I like to think so—that they decided they'd like a tree to sit around while they munched sandwiches at lunchtime.

At any rate, what a century unfolded around that grapeleaf linden, *Tilia platyphyllos* Vitifolia! It was set into the earth beside a variety of wooden sheds and stables that cluttered the South Yard of the Castle. Some of these had been built to hold a growing collection of animals that started with six bison. I suppose the little tree was fenced to keep the bison from grazing on it. In 1891, the first of the 180 or so animals were moved, often only two at a time, in a borrowed wagon ("Noah's Wagon"?)

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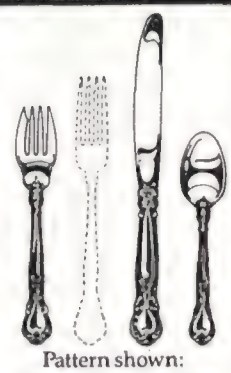

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As the linden tree grew, it looked down on the new Astrophysical Observatory, founded by Langley, and on the workshop where he built his spectacularly successful, tandem-winged flying models. He was convinced that all he need do was expand the scale and he'd have the world's first man-carrying, heavier-than-air flying machine. Poor Langley's dream collapsed, along with his full-scale "Aerodrome," a week before the Wright brothers succeeded.

During Charles Doolittle Walcott's tenure as Secretary (1907-27), the linden grew in an atmosphere increasingly redolent of automobile exhaust. Teenage messenger boys at the Smithsonian, gathering under the tree's spreading branches during their breaks, probably heard distant bands playing at war-bond rallies, and perhaps glimpsed the placards of suffragettes.

Margaret Klapthor, Curator Emeritus at the Museum of American History, remembers being told that the lads used to play mumblety-peg in the shade of the linden. I suppose mumblety-peg's a forgotten pastime now, but back then all boys were besotted with it—even when I was one.

The idea was to flip your jackknife into the ground, blade first, from various parts of your body—shoulders, chin, nose—I can't remember the exact sequence. I was pretty good at it, my knife thudding home in the sod again and again. Traditionally, had I been a loser, I'd have had to pull the knife from the ground with my teeth. No hands. Hence "mumble-the-peg." I don't recall that anyone in my crowd actually ever did this, but the threat was always there.

In the early 1920s, the linden tree had a ringside view of a new gallery being built—Florentine arches and lintels coming together serenely to shelter Charles Freer's collection of Oriental art, and 19th- and early 20th-century American painting, especially the works of Freer's friend James Whistler.

Came the Depression, then World War II's population explosion in the nation's capital. During the war years, Margaret Klapthor came to the Smithsonian's Division of Political History, which was then housed in the Arts and Industries Building. Her office looked out on the linden. "In the wintertime," she notes, "its skeleton against the western sky was a work of art.... All summer long the dense green of its foliage was a

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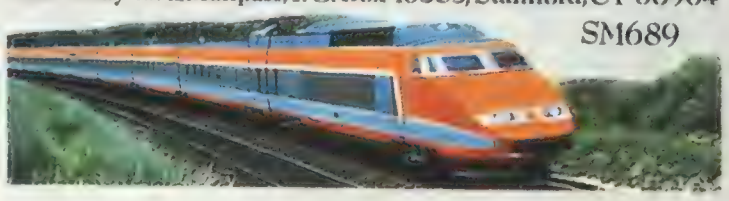

real godsend to those of us who worked in that west office in the days before air-conditioning."

Soon after the war, one of the buildings near the linden, an old carriage house, became the "Bug House." Here the Smithsonian corps of dermestid beetle larvae chewed every scrap of soft tissue from the bones of natural history specimens. Gnawing away, the tiny creatures got every microscopic remnant of meat and cartilage, and scientists at the Museum of Natural History sighed with joy over their squeaky-clean mouse skulls and hummingbird skeletons. One of them later told me that the place "smelled like a charnel house."

Who can forget the Quonset hut, a wartime relic, jammed with aircraft and space-age equipment? Rockets too big to fit inside stood out in the open, giving the whole Smithsonian a grimly belligerent look until at last the long-promised Air and Space Museum opened in 1976. Its last shack gone, the Quadrangle, as we had come to call it, became a rich Victorian garden, over which the linden presided.

Margaret Klapthor reminisces that when she was at A&I, "Those of us who worked in the History Division felt it was our tree." I know the feeling. This magazine started when the linden was in its sweetest maturity. No outdoor spot was more attractive than the deep shaded enclave that its wide-spreading boughs offered on a hot day.

Until the garden was built, some of us parked quite near the tree trunk. I used to swirl into my space, raising dust with sudden brakes, and was informed by Secretary Ripley that if my bumper touched that sacred bark, I could go clean out my desk.

Here, in the early '70s, I met and described Robert Frost, the tree-swinging gray squirrel who drew a crowd by climbing up the outer wall of the Castle. Henry the Mockingbird used to pause among those dense branches and wait for his fans to appear with raisins.

We newcomers to the Smithsonian sat in the linden's shade on antique iron benches and discussed the Institution and the magazine's future in it, as though to gain confidence from a very old staff member. Such communion gave me, at least, a sense of the Institution's serene permanence.

Well, the linden got that message

Linden (right), resplendent in full foliage, 1982, accents Victorian garden.

across, but it wasn't so permanent after all. In 1977-78, it was fumigated to wipe out an infestation of carpenter ants. The holes were sealed, but the ants returned in 1979. The tree was showing its age.

Smithsonian Horticulturist Jim Buckler says that parking cars around it compacted the soil. Not good. Then came the Quad project. The linden dictated a

Felled by age and stress, our old friend lies still and bare in January '89 snow.

good part of the design for this underground complex. A section—some 3,600 square feet—was cut from a corner to accommodate the tree's root system. It was fenced off from the construction, fed, pruned and wetted down by a sprinkler specially installed to keep the dust off.

But the 4¼-acre construction hole had to be pumped dry continually, and that inevitably affected the water table. A number of limbs died and were removed. Growth on the tree's west side diminished to about a third of the rate of the east side. And about a third of the west side's bark peeled away from the cambium layer. To a tree, that's terminal.

More branches died. Last fall, about half of them were removed. Last winter a storm raged through Washington, followed by gales that gusted to 75 miles per hour. The linden survived. A week later, in the midafternoon of Wednesday, January 4, 1989, people in the magazine offices whose windows face the Haupt Garden heard and felt a crack, rumble and reverberating thud. Careful not to hurt anyone, not even to mar the antique benches under its boughs, the ancient 80-foot tree toppled over.

The mess was quickly cleaned up. Linden is bass wood, fine for carving. The horticulture people were swamped with phone calls from people wanting pieces. But the wood that wasn't hollow was saved to make models for Smithsonian exhibits. Plans are well under way to fill the gap. Good. By early June, four *Tilia cordata*, or small-leaved lindens, will stand in the void. We probably will grow to love them and be affected by them. But perhaps not to the same extent as we were by the linden—at least not in the magazine offices.

Note that soon after the linden's terminal illness set in, science editor Jack Wiley had the heart attack that he described unforgettably in his April *Phenomena* column. Disaster followed disaster as death approached for our tree: two gallbladder operations, two pneumonias and half the magazine staff struck down by flu.

I—more fey perhaps than most of my colleagues—was abroad at the time of the linden's demise. But in February I paid a sorrowful visit to the empty site of my old friend. Exactly one day later I came down with flu, which—arrogantly ignored by me—then turned to pneumonia and put me in the hospital.

The future is brighter, however. Three of the staff expect babies, one this month; three others are getting married. Jack's quit smoking, and I listen to wife and doctor. And this spring the magazine had the largest print order in its history—2.6 million. Gives one a good feeling about those new lindens.
Edwards Park

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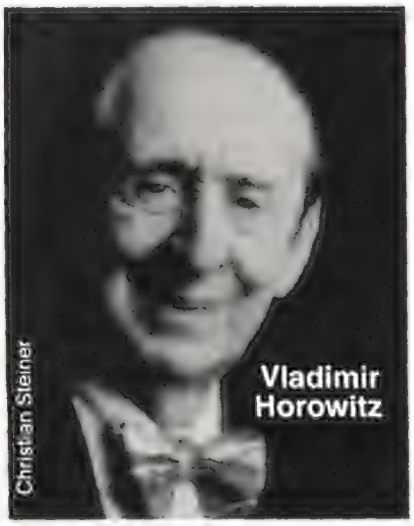

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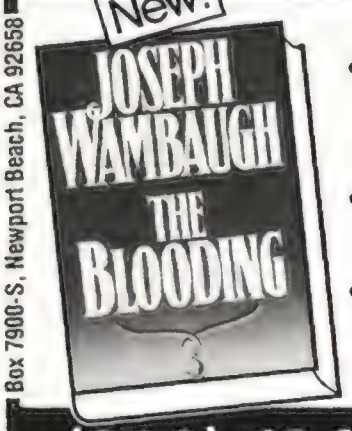

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Phenomena, comment and notes

Peter Sheldon's on-site measurements help in determining age of trilobites.

In the days of megascience, even those on the other side of a debate admire one who still confronts nature alone

Astronomers do not spend their nights at the telescope anymore. Or at least when they do, they do not operate the instrument. Instead they sit at a computer monitor while someone else actually runs the thing. Life was not always this way. Time was when an astronomer at Mount Palomar would bundle up against the cold and sit all night long in a cage *inside* the steel framework of the mammoth telescope. In those days, as one veteran told me over a nostalgic late-night glass of beer, the most important discoveries went to the man with the strongest bladder.

The vision of the lonely scientist pursuing truth in a solitary laboratory is equally out of date. Today's science tends toward huge projects like the space station and the Superconducting Super Collider—undertakings that cost billions of dollars and employ thousands of scientists. More and more, science is done by teams of researchers, each handling one bit of the total effort. The old days are going; tomorrow's science will resemble multinational conglomerates more than comfortable mom-and-pop grocery stores.

The change is not arbitrary and capricious. Modern science is expensive; everyone cannot have an atom smasher in his or her office. We scientists know that the questions we ask today cannot be answered without our big machines, but deep down in our atavistic souls we are uneasy about this new corporate mode of pursuing our craft. Like motorists caught in a traffic jam watching a horseback rider in a distant meadow, we feel a sense of loss when we think about the way things used to be.

All this is by way of introduction to a series of rather remarkable events that have taken place recently in an obscure corner of paleontology, but which have reverberated through large portions of the scientific community. At the center of the controversy is a young British paleontologist named Peter Sheldon. With a cheerful, unassuming manner, a beard already flecked with scholar's gray and a rumpled tweed jacket, Sheldon hardly seems the sort to trigger acerbic letters to professional journals. Neither, for that matter, does a paper he wrote, a paper whose very title, "Parallel gradualistic evolution of Ordovician trilobites," seems to say "For specialists only." Yet this man and this paper added fuel to an argument about one of the most fundamental questions we can ask: How did life on Earth become what it is?

You probably know that scientists who think about evolution are engaged in a major debate. The two positions can be characterized roughly as "gradualism" on the one hand and "punctuated equilibria" on the other. In its purest form the first of these, Darwin's

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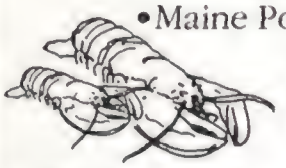

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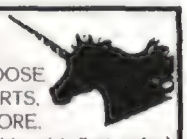

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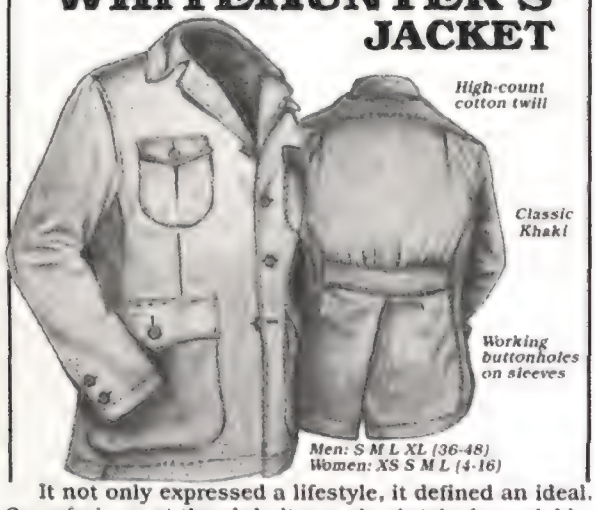

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version, holds that one species evolves into another by the gradual, steady accumulation of small changes. The opposing position, associated with Stephen Jay Gould and Niles Eldredge, holds that evolution is characterized by long periods in which no visible changes occur, interspersed with short, irregular bursts of rapid change. The argument rages because, to be blunt, we have not yet assembled the fossil record in enough detail to make an unambiguous choice between the two ideas.

This grand debate was the farthest thing from Peter Sheldon's mind when he started his graduate studies at Cambridge University; he did not even know about it, he says, until his second year. Instead of thinking about the "big questions," Sheldon staked out a few square miles of rough mountainside in Wales and began collecting fossils of trilobites. (A distant relative of horseshoe crabs, trilobites dominated life on the ocean floor 450 million years ago.) Like scientists of old, Sheldon worked alone, sorting out the geology of his chosen area and amassing crates full of trilobite fossils. As his cohort of graduate students took their doctorates and went out to seek their fortunes, Sheldon kept adding trilobites to his collection. Eventually he moved, with his crates but without his PhD, to the University of Wales in Cardiff, where he became an instructor. Eight years after starting, he decided it was time to finish unpacking the crates and wrap up his work.

To understand the significance of what he did, you have to know a few things about trilobites. Like the lobsters you attack at fancy restaurants, they had a hard external shell that lent itself to preservation as a fossil. The shells had a segmented body and ribbed tail, and different species had different numbers of "ribs." One way that paleontologists traditionally distinguish one species from another is by counting the ribs in the tail section of the shell.

What Sheldon did was to take 3,458 of his fossils and count the tail ribs—45,228 in all. He did this in one uninterrupted burst, a year of 12-hour days, 7-day weeks. When he was finished, he had a clearer picture of how his trilobites had evolved, including a smooth, gradual transition between some that had been classed as totally separate species before his work. He concluded that, for his trilobites, the change was smooth and gradual rather than punctuated. At

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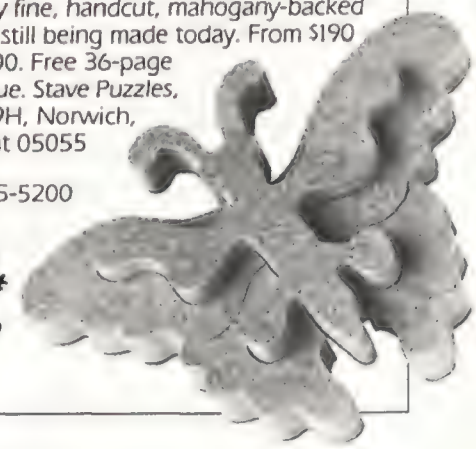

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last Sheldon collected his well-earned doctorate and set out on a tour of the United States.

Proponents of gradualism seized on his work to bash their rivals, of course, as scientific competitors are wont to do. And of course, the punctuationists came out swinging, as was only to be expected. This sort of thing is standard in any scientific altercation and should surprise no one. What did strike me was the level of admiration everyone evinced for the man himself. Even at places like Harvard, where punctuationists have the home-field advantage, he was made to feel welcome and given a respectful hearing. Some of this reaction may have to do with Sheldon's easy-going personality but some, I am convinced, has to do with the realization that a person who is willing to spend 11 years collecting trilobite fossils and counting their ribs is cast in the old, heroic mold we all secretly admire. *We* would not jeopardize our chances for tenure by doing it, but we have a sneaking respect for someone who will.

Sheldon's reception by his colleagues reminds me of something from my childhood. I belonged to a church that supported missionaries working in distant corners of the globe. When one would return to report on his work, the attitude of the congregation was inter-

Sheldon's data show how lineages of these two trilobites gradually evolved.

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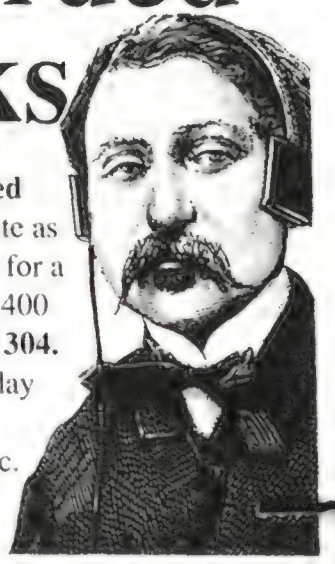

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esting: no one there really wanted to run a hospital in Africa or a school in the Amazon. We listened with respect, however, because we were glad that *someone* was doing the job the old-fashioned way.

Like a member of that congregation, a modern scientist sitting at his multimillion-dollar computer may pause occasionally and wonder whether the mad chase after the next publication, the next research grant, the next symposium, is really what science is supposed to be about. We may not be willing to give up the advantages of modern corporate science to go back to the old ways, but we are happy to be reminded from time to time that those old ways are still there. And when we turn back to our computer keyboards, we find that our souls are a little lighter because we know that somewhere out there in the mountains of Wales, a lonely figure with a geologist's hammer is confronting nature by himself, dueling *mano a mano* with the unknown as all of our kind once did.

Here's to the old ways. Peter Sheldons of the world, we salute you!

James Trefil
Robinson Professor of Physics
George Mason University

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In picture by a Farm Security Administration (FSA) photographer, a huge dust cloud boils across Colorado on April 14, 1935, the day known as Black Sunday.

By Michael Parfit

The Dust Bowl

Half a century ago, parts of the Great Plains blew away, and the question now is: Could it be happening all over again?

It is like remembering an assassination. Anyone who was alive then in Cimarron County, Oklahoma, remembers where he or she was on the afternoon of April 14, 1935. Gordon Folkers was helping his mother with the chickens. Lloyd French was walking a team of four horses west of Kenton, at the western edge of Cimarron County. A group of people from Boise City were driving out of town, taking the body of Mrs. James Lucas to Texhoma for burial. Jerry Shannon, who was 7, was outside the Santa Fe Railroad building in Felt, in the southwest corner of the county.

The day was sunny and calm. "I remember how still it was," Jerry Shannon says. Then the storm came, rolling down from the north like a tidal wave of earth. Birds fled ahead of it across the sky. People looked up. Some took photographs. Some prayed. To Lloyd French, looking out at Oklahoma's highest point, Black Mesa, it was like a curtain falling on a vast stage. He grabbed a horse's bit in each hand and hung on.

The worst day in a terrible decade

"You could see it a-comin'," Shannon remembers. "From the north, here it came, just a whole boil, roll and boil." The cloud crashed over Kenton, over Felt, over the funeral procession. With a rush the day became darker than night. Car ignitions shorted out. Windmills, brushed by wind and dust, became charged with electricity. People were lost a few hundred feet from home. When the brown cloud hit Felt and blacked out the sun, a neighbor woman knelt near Shannon on top of a fence that was drifted in with dust like dark snow. "She was on the top board, praying," he remembers. "She thought the end of time had arose."

Later, April 14, the worst day in a terrible decade, would be called Black Sunday. Out of it grew another, more lasting phrase. The next day the *Evening Star* in Washington, D.C. carried a story by a reporter named Robert Geiger, who wrote: "Three little words—achingly familiar on a Western farmer's tongue—rule life in the dust bowl of the continent—'If it rains.'" The most memorable of his words however, were two. Geiger had given the place and time a name: Dust Bowl.

The region is not a bowl. Although drought and low prices hurt farmers across America, historians agree that the Dust Bowl itself was restricted to a 97-million-acre piece of high, level land in the southern portion of the Great Plains. It included parts of Colorado, New Mexico, Nebraska, Kansas, Oklahoma and Texas. From the air, this part of the Great Plains looks terribly vulnerable to the storms that sweep down from the Rocky Mountains to the west. The towns of the Dust Bowl cling to the land like so many fleas on the head of a bald man in an open car, faking nonchalance, daring the wind.

Abandoned plow lies on its side in Oklahoma field. Arthur Rothstein took the photograph in April 1936.

Boise City, Oklahoma, is in the middle of it. Built in the center of Cimarron County, which is in the heart of the five-state area covered by the worst of the Dust Bowl, Boise City is one of the highest, most vulnerable of these brave collections of school buildings, grain elevators and stores. The Dust Bowl is the central feature of memory here, like an earthquake or a revolution. In the heart of this country there is no escaping the hot, dry breath of history.

When I visited Cimarron County recently to talk to the survivors of that decade, many were reluctant to take their memories back to that time. But everyone there, young and old, knew, hearing just those two words, exactly what I was talking about. The Dust Bowl has become a myth and a symbol in the culture of 20th-century America.

"The plow that broke the plains," Rothstein noted in caption material for the picture. "Look at it now."

There are many theories about the causes of the Dust Bowl, beyond the obvious drought and wind; historians debate whether it was created mostly by climate, or whether it was a man-made ecological disaster caused by capitalism's shortsighted enthusiasm for profit. But certainly one of the things that made it so painful was the great optimism and hope that ran through the region right up to the moment of disaster.

At the turn of the century, Cimarron County—like the rest of the Great Plains—looked as if flush times had arrived. The prairie was green; rain fell in abundance. "Everywhere west of the Mississippi looked good," says Lloyd French, who was born in Cimarron County in 1912. "But this country looked a little better." It was Wheat Heaven.

Farmers poured into the area. The boom, which fluctuated with the price of wheat, hit a peak during the late 1920s. In and around Cimarron County you could put 25 percent down on grassland that cost as little as $15 an acre. You could "break it out" of its grassy prison with a plow, hope to raise 20 bushels of wheat per acre, sell each bushel for a dollar and pay off the land in a single season.

If people were aware of the region's history of regular drought and dust, they had ways of explaining why it wouldn't happen again. Cultivation of the land, some said, would change the climate and bring more rain. That suited the farmers, who wanted dollar wheat far more than they wanted grass. "Everything went wheat," remembers Ronald Fronk, "and the farmers went bananas."

"They broke out every bit of land"

Fronk lived in Beaver County, Oklahoma, east of Cimarron. All the counties of the Dust Bowl were inundated with farmers. "They broke out every bit of land they could," he says. Some came to build and live, but some were visitors who were called "suitcase farmers." They came for the weeks of planting and harvesting, but spent the balance of their time living and working elsewhere. They were druggists, bankers and teachers, and they came from as far away as Chicago and the East Coast. Others bought land and employed tenants to work it. People lived on almost every section in sod buildings, "dugouts," clapboard houses or houses ordered from Sears, Roebuck. There was employment for the whole family—man, woman and child. Lloyd French got started at the age of 9. "I broke out a lot of this country myself," he recalls. "It plowed easy. You'd plow over a piece of ground and look back—and about one-third of the grass was still looking at you, but you'd tore it up. You didn't have to farm too good because we had the moisture."

The ground was broken, the rain fell and the wheat came up. In the Texas Panhandle, just south of Cimarron County, about 82,000 acres were planted in wheat in 1909; by 1929 the acreage was nearly 2 million.

This enormous change in the land's surface was made possible largely by the mass production of tractors, and with typical human willingness to blame machines for our mistakes, the tractor has become a leading Dust Bowl villain. They were "snubnosed monsters," John Steinbeck wrote in *The Grapes of Wrath*, "raising the dust and sticking their snouts into it." In 1929, R. P. Crabtree, a young man who farmed in Texas on the edge of Cimarron County, bought his first tractor, a Farmall. It had lugged steel wheels four feet high, and it used much of its power just hauling itself around. "It was supposed to equal six head of horses," Crabtree tells me, the disappointment still in

Oklahoma farmers wait for rain in a 1936 picture by Dorothea Lange who, like Rothstein, worked for FSA.

his voice. "It worked," he says, "kind of poorly. Couldn't pull much plow."

What it pulled, poorly or not, was made of disks on a beam and was called a one-way plow. To some historians this plow was as important a factor in the creation of the Dust Bowl as the machine that pulled it. "It just scratched the top of the soil," Fronk says. "It made the soil into powder." This was not unwanted. Another theory—as credible as the idea that plowing brought rain—was a technique of trying to keep moisture in the ground by using "dust mulch," which meant leaving a fine powder of soil on top of a hard-packed base. That's just what the one-way plow did.

All this voodoo agriculture seemed to work. The rain fell and the wheat came up. Homesteaders, tenants and suitcase farmers alike hauled it to the grain elevators in Boise City and a hundred towns all over the Plains, took a dollar a bushel and bought more tractors. "For a few years at least," historian Donald Worster wrote recently, "they made the region say money instead of grass."

By 1930 the voice of grass was just a whisper: in five years, more than five million acres of the Plains had been plowed. "For that time," says Lloyd French, "there was money floating everywhere. People didn't lay a lot of that back they ought to have laid back."

The rain fell; the wheat grew. In the summer of 1931 it poured forth in a great golden flood from all the fields of the Great Plains. You didn't harvest just 20 bushels an acre; you got 50. There weren't enough barns, elevators, railroad cars or ovens to hold it all.

That was the great moment. Then the blows started to fall. The first was price. Wall Street had crashed and there was so much wheat in the West that there weren't enough people to buy it. The price wasn't $1 a bushel anymore; it was 25 cents.

The farmers call it "drouth"

Then the rain stopped. It was replaced by an inexorable dryness that people in Cimarron County, as if their tongues are still dry, call "drouth." In 1932 the county's total rainfall was nearly 12 inches. In 1933 it was about 15. In 1934 it was barely 9. In 1935 and '36 it averaged about 10. Only once in the decade—1938—did the annual rainfall exceed the 17-inch average. The story was the same elsewhere. During that period 20 states set records for dryness that still stand.

"In '32 there wasn't much rain," says Lawrence Powers when I visit his farm north of Boise City. "We had a very short crop. From '33 to '36 we raised nothing."

The low wheat prices and yields of 1932 drove many of the suitcase farmers and some of the tenants off the land, and vast acreages of one-way-plowed fields lay abandoned, ready to blow. In 1932 the dust first lifted

Grit blows across drought-stricken fields on a farm in Cimarron County, Oklahoma. Rothstein captured bleak scene in the spring, the season when, in good times, the rain falls and the crops begin to grow.

from the fields in clouds; in 1933 it scoured the landscape. At Goodwell, Oklahoma, about 50 miles southeast of Boise City, Panhandle A&M College recorded 70 severe dust storms that year.

There was more than one kind of dust storm. The Kansas Academy of Science called them rectilinear, rotational and ebullitional, and divided those three types into "species," including "sand blows" and "funnel storms." A Texas meteorologist identified two classes: southwestern and northern. When the wind blew from the southwest, the dust blew high but thin; the storm would sometimes throw dust more than 10,000 feet above the ground, but you could see. The other kind rolled down from the north in low, boiling clouds that were dark enough to black out the sun even more than an eclipse. The people who lived through them had their own names. Jerry Shannon, who is now city manager of Boise City, talks about "black northerns." In the *Boise City News* they were "dusters." Historians wrote about "black blizzards."

In 1933 the region and the time had not yet been given their name. But the taste of life was already dust. "People would swear that you could put a stopper in a jar," Powers says with a gentle smile, "and the dust would still get in." The wry amusement on his face is partly because he has told his stories to younger people so many times, and so few have believed them. To make me understand, he takes me out in back to a big red tractor, removes the air cleaner and shakes it out on the balance weights. "It was just like that," he says.

The dark, red-brown dust makes soft mounds on the metal. I rub some between my fingers. It is silky as talcum powder. A pinch thrown in the air doesn't fall as sand would; it hangs like dirty mist and drifts away on the breeze. It leaves a smudge on my fingers. When dust this fine covered the land, a walking man kicked up haze as high as his waist; a running rabbit left a trail in the air. It seeped into your dreams: in the morning when you awoke in your home, the only white spot was on the pillow where your head had been.

The dust changed the nature of life. All routines involved its soft, subversive dirtiness. "It is a daily task to unload the leaves of the geraniums and other house plants," observed Caroline Henderson, an Oklahoma Panhandle farmer, some of whose letters and essays from the Dust Bowl were published in the *Atlantic Monthly* in the 1930s. "Dust in the beds and in the flour bin, on dishes and walls and windows, in hair and eyes and ears and teeth and throats. . . ." The people I talk to in Cimarron County remember hanging wet blankets across the windows and going to bed with wet cloths across their faces. You would eat

Michael Parfit, a frequent contributor, flew his lightplane through a dust storm over New Mexico, going from Oklahoma to California for this story.

out of the pot on the stove because all the dishes were dusty. At Margaret Fronk's house, guide wires were strung from the house to the barn so the family could still get the milking and feeding done when the air thickened. Dust infiltrated everywhere: people scooped it out of the bathtubs, but no one saw the drifts growing in the attic until the ceiling fell. Jerry Shannon's father was a section hand who rode the Santa Fe trains into New Mexico, shoveling drifts off the tracks so the train could proceed, and then shoveling the tracks out again on the return trip. The wind scoured its way down into the past; when a freight came to a freshly blown-out slope, the crew would stop the train and get out to look for arrowheads.

The land itself moved capriciously. One day the north side of the barn would be drifted in; the next day the dirt pile would have been swept away. Fences would be buried to the top wire, and next to them yucca plants, called soapweed, would stand nakedly on stilts of their roots. Lawrence Powers remembers the time a fuel dealer's truck got buried to its axles. The dealer walked to a farm for help. But the farmer, with a strange sort of biblical wisdom, told him to go back to his truck and, lo, the trouble would be no more. By the time the dealer returned, the dry mire had blown away as surely as a nightmare vanquished by the sun.

But in the Dust Bowl there was no awakening. The sun was the nightmare, compounded by the ruined economy. "How did you get along?" I ask Lawrence Powers. "That," he says, with his same gentle smile, "is a damn good question yet."

Powers' family sold a few bushels of that grand

Fatigue etches the face of a migrant worker camping with his family before the start of a wheat harvest in Texas. Laborers looked for work all over the West in the 1930s. Like many others, this worker had a dream. Someday, he said, he wanted "a little place in Idaho."

A farmer on relief totes provisions and sack of flour down a road in Oklahoma. By 1939, half of the state was on relief. Many who tried to stay on their farms in the "Dirty '30s" depended on special programs created by President Roosevelt to fight the Depression nationwide.

accumulation of wheat every once in a while to have enough to buy food. And although Powers remembers his parents' garden being blown away every year, others recall the place they knew as the "truck patch" providing plenty of food to be canned for the winter. Margaret Fronk, of Texas County, remembers carrying endless buckets of water from the windmill to the garden to irrigate, and collecting loads of cow chips, which some called prairie coal, for stove fuel. Many of the people of the Dust Bowl depended on Works Progress Administration jobs and other programs the Roosevelt Administration created to fight the Depression all over the country. By 1939 officials estimated that half of Oklahoma was on relief.

In desperation people turned to shady enterprises, some more grand than others. Some bought eggs on credit at a friendly grocery, then turned around and sold them to a nearby produce store for cash. Some dug old implements out of dust drifts and sold them for scrap iron. "Lots of times stuff maybe shouldn't have been picked up and sold," R. P. Crabtree says. And more Cimarron County residents than now admit to it got through those dry, dry years by helping to keep Kansas City speakeasies wet.

"There were so many bootleggers," Lloyd French recalls, "that they had to wear badges to tell each other apart. They hauled bootleg whiskey as far as St. Louis." When I drop into the Ford dealership in Boise City and mention my interest in Dust Bowl history, the first story I hear is about the time the deputy sheriff broke open about 20 barrels of mash and got a whole farmyard full of hogs, dogs and chickens reeling drunk.

Livestock, particularly cattle, suffered in the Dust Bowl. Grazed pastures blew out to hardpan almost as readily as one-way-plowed fields. Ranchers collected yucca plants and green tumbleweeds—Russian thistle—for feed. Lloyd French used a weed burner to singe the spines off cactus plants so the cattle could eat the succulent branches. One year, he remembers, he used 550 gallons of kerosene just burning spines: "I'd burn all night. Man, as soon as you'd get those stickers off, they'd eat it all." That wasn't enough, though. In 1934 the federal government began a program of buying and killing cattle to get them off the range. "Guys would shoot the cattle and they'd drop in their tracks," says Norma Gene Young, daughter of the then publisher of the *Boise City News*. "After that, two of the ranchers went out and blew out their brains."

For many, the only way out was to die or drive away. "While it is true that between 50 and 100 Cimarron County families have moved or contemplate moving," a *Boise City News* reporter wrote with desperate optimism two days after Black Sunday, "the whole migration takes on the aspect of a temporary activity." It wasn't. The people who left seldom returned. Although Steinbeck got some things wrong in *The Grapes of Wrath*—the part of Oklahoma where the Joads lived wasn't in the Dust Bowl at all—it caught the heart of the story. "I remember a fellow name of Cole," says Jerry Shannon. "He came to our house. He had an old truck. He had everything he owned tied on that truck. His dog was in the front seat with him. I can still see his dog. He told my dad, 'That's it. I'm gone.' "

Shannon can still find the grove of hackberry trees where another emigrant lived, but few of the people who headed for California, Texas or Arkansas left even that much of an impression. A total of 1,642 people—40 percent of the population—abandoned Cimarron County during the '30s. They vanished as silently and completely as the wheat crops of '33, '34 and '35—planted here but never grown.

The people who stayed are proud of their triumph over adversity, though many admit that good fortune may have helped as much as fortitude. Usually it was a combination. Lloyd French happened to have an irrigated piece of bottomland, and managed to raise hay on it. He irrigated throughout the nights, sitting on the edge of the ditch and sleeping. In 1935 he sold 50 tons of hay to the federal government at $20 a ton to feed the horses on a road project. "That," he says, "was more money than in the whole USA." Lawrence Powers' father insisted every year on planting a crop, whether there was much hope for rain or not. One day when he was out looking at the sad efforts of his field, a small cloud appeared overhead, slowly grew larger and finally poured down rain, practically on *his* field alone. "He always said," Lawrence's wife, Anna, remembers, " 'That's what made my crop.' "

Some got by on humor. Historian R. Douglas Hurt writes that when "one man was hit on the head by a raindrop, he was so overcome that two buckets of sand had to be thrown in his face to revive him." When a traveler stopped at a restaurant, Hurt continues, he ordered a boiled egg, cracked it open and found it full of dust; he took a dozen of those eggs home and put them under a hen. They hatched ten mudhens and two sandhill cranes.

People also told the story, reported by historian Donald Worster, of a motorist who saw a ten-gallon hat on a dust drift. He picked it up and found a head under it. "Can I give you a ride to town?" the motorist asked. "Thanks, but I'll make it on my own," the head answered. "I'm on a horse."

In Boise City, a special wind gauge

Much of the humor was, well, gritty. Even now a wind gauge at the Boise City Body Shop consists of a chain wrapped around a 35-pound rock. A newspaper editor in the Texas Panhandle organized a Last Man's Club, open to those who pledged to be the last to leave. It was formed the day after Black Sunday. The editor exhorted his readers: "Grab a root and growl."

Most of those who stayed simply grabbed the root and lived on hope; they seldom complained. "My folks kept their troubles pretty much to themselves," Lawrence Powers tells me. Anna is compelled to add: "They were *tough*—that's what they were."

But sometimes a cry escaped the parched lips of even the toughest people of Cimarron County. A writer who called himself Slats and published a wry column titled "Driftwood" in the *Boise City News* finally let himself go a few days after the black northern of April 14, 1935. It was the universal cry of Job. "Why [is it]," he

Windblown sand blocks the door of Cimarron County shed. In the '30s, land often seemed to take on a life of its own. Piling up around a house one day, sand would disappear the next. Dust storms struck so quickly that people sometimes got lost in their own backyard.

His fence overwhelmed by drifting sand, farmer digs out a post while boy and a cow look on. Drought was terrible for livestock, of course. Pastures vanished and hay was hard to get. Many farmers burned spines off cactus plants, which they then fed to hungry animals.

A familiar sight in Sallisaw, Oklahoma, in the '30s was farmers seeking refuge from blazing sun. Photographer Lange overheard a typical greeting: "Hello, Bill. When is it gonna rain?" Another man told her, "These fellas are going to sit here until they dry up and die, too."

wrote, "when we ask so little of life sometimes and conduct ourselves to the best of our ability, we should be punished so severely?"

The pain of unjust loss ran through the country like the wind. "Impossible it seems," wrote Caroline Henderson, "not to grieve that the work of our hands should prove so perishable."

It was this pain, this incomprehensible combination of dust, poverty, desperation and courage that transcended its time and became a part of the theme of America: hard times and survival. This was a difficult image for the Dust Bowl states to accept. Throughout the region, officials and newspapers denied what was happening all around them. Oklahoma preferred to be the home of Will Rogers, the "American Prometheus," historian W. Richard Fossey writes, rather than that of Woodie Guthrie, the master of songs of dust and suffering. But it was the courage both of the migrants and of those who remained that captured the American imagination. Steinbeck ennobled the Okies; photographers from the Farm Security Administration made the dust-ravaged faces of the farmers waiting for rain part of the country's permanent image of heroism.

The most famous Dust Bowl photograph (p. 57) was taken in Cimarron County by Arthur Rothstein, who visited Arthur Coble's homestead near Boise City in April 1936. "We found Mr. Coble working," Rothstein said years later, "digging out fenceposts . . . trying to get some water to a few forlorn cows . . . we could see that the wind was going to blow harder and harder, and great clouds of dust were coming up everywhere. So, I said goodbye to Mr. Coble and to the boys, and the county agent and I went back to the car. I was about to get into my car when I turned to wave to them. And I looked and saw this man bending into the wind, with one of the boys in front of him and another one behind him, and great swirls of sand all around, which made the sky and the earth become one. And I said, 'What a picture this is!' And I just picked up my camera and went 'click.'" It was the lasting image of the Dust Bowl. A man and two children, the man's face turned with care toward his son; the child behind him shielding his eyes. The dust was blowing, but the people leaned into it and did not give way.

Late in my visit to the heart of the Dust Bowl I journey to the Coble homestead with Jerry Shannon. We drive through mile after mile of fields of cut stubble and parched winter wheat—this year, too, moisture is scarce. The land is desolate. Here and there are patches of dry trees where homesteads used to be. Windmills stand on the horizon like sentinels on a battlefield of the past. Old fences have been replaced by low electric wires, which are so hard to see it looks as if the occasional herds of cattle drifted through the landscape have been turned loose forever. For mile after mile, there are no inhabitants. Where people once lived on every quarter-section, and children chased tumbleweeds, no one now lives.

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At the Coble homestead the house has blown down. A windmill still stands, but on new metal legs. Shannon is delighted to find the foundation of an old two-holer outhouse he remembers using—the wooden seat is growing splinters in the weeds nearby. A cedar-post fence corrals a herd of hogweed next to the collapsed building. Shannon peers into the ruin, looking at the cardboard tacked on a wall for insulation. He picks up a pointed boot that lies by the door. The people of Boise City like to say that if you wear out a pair of shoes in Cimarron County you'll never leave. This boot is worn out and abandoned. The three people in Rothstein's photograph are dead.

"Hard tellin' whose boot this is," Shannon says. He turns it over. Dust pours out and drifts away in the wind. We drive away along the empty roads.

Few of the people who left ever returned to Cimarron County, but the rain came back at the end of the decade. In 1941, Lawrence Powers' father raised wheat and repaid his debts. The land again became green. But dust storms returned during the drought of the early '50s and wind excavated history once more; only this time the past unearthed by the storms was the lug marks of the old tractors of the '20s, tracks that had lain hardening beneath the dirt like the dinosaur footprints that march across the landscape in the western part of Cimarron County.

What about the greenhouse effect?

If there is general agreement today that the Dust Bowl was caused by a combination of climatic and human factors, there is also growing concern about yet another phenomenon. This is the apparent overheating of the Earth's atmosphere due mainly to man-made pollutants. The phrase used to describe it is the "greenhouse effect." The worry is that it may even now be operating to create another desert in the nation's breadbasket, and far beyond. Climatologists disagree about this. The farmers of Cimarron County know, for their part, that the world doesn't have to turn into a greenhouse to bring the dryness back. With the winds again carrying the fine grit through the streets of Boise City, the old phrase "Dust Bowl" hangs in the Western air, where people try to shoot it down.

Tractors today can dig the soil deeper, they say, to bring up clods and keep the topsoil from blowing off. Grassland restoration programs will keep more land unplowed. "Farm Ugly" and "Low Till" campaigns will leave stubble and vegetation on cultivated land. But the optimism sometimes has a familiar, hollow sound. "I don't believe there will be another Dust Bowl as we knew it," Jerry Shannon says, "because our farming practices are as close to perfect as you can get."

The Dust Bowl is like the hardened tracks of tractors and dinosaurs: it's now part of the landscape. It remains marked in memory, like the death of a great king, a dreamer or a dream; it forever saddens and enlightens the time that follows. What we learned from it and whether something like it will ever come again may always be debated, but there is one simple truth about the years of black skies, depression and despair that filled the 1930s. Gordon Folkers caught it for his generation in Boise City and for all the Dust Bowl in an essay he wrote for a forthcoming book on Cimarron County history: "I guess the best part of the 'good old days' is that they are gone."

In the most famous picture of the era (right), farmer Arthur Coble and his sons flee a big dust storm in Cimarron County, Oklahoma. When photographer Rothstein saw them leaning into the wind, he grabbed his camera and created a lasting image of urgency. Today the land nearby is grassier (below), but dry spells stir memories in Dust Bowl survivors.

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THE TEXAS RANGERS AND ANTISUBMARINE WARFARE

Though the threat posed by submarines to the sea-lanes has been with us less than a century, the principles of dealing with concealed dangers are as old as mankind.

During the war between Mexico and the United States from 1846-1848, a hard-bitten band of Texans, known as the Rangers, provided an invaluable reconnaissance service to the American army under Zachary Taylor.

The Texas Rangers were master trackers. They were attuned to every telltale sign that revealed the position, strength, movement and condition of the enemy. The colorful Mexican troops, bedecked in uniforms and accoutrements of operatic splendor, could be detected from miles away by the sparkle of the sun glinting off of

Texas Rangers Find Santa Anna's Army, 1847, Ezra Tucker, 1989

their lance points, bayonets and insignia. Even subtle signs, like a discarded pack of cards, were useful in revealing the recent passage of large bodies of infantry.

This thorough collection of intelligence finally paid off for Taylor at the Battle of Buena Vista. Alerted by his Rangers of the approach of Santa Anna's army, Taylor fell back to a strong position, laced with ravines to break up the assault formations of the enemy. When the Mexicans attacked, their superior numbers were unavailing against the American defenses. Santa Anna retreated, his last real hope of defeating the Americans broken.

The skills of tracking were not invented by the Texas Rangers. Those very skills, in fact, are among mankind's oldest, going all the way back to our prehistoric ancestors. But the Rangers demonstrated again how the hunt is so vital in the realm of conflict.

Though the technology and context of modern anti-submarine warfare are as far from the Texas Rangers as one might imagine, the operational principle is identical: to stalk concealed threats and neutralize them.

As submarines become more and more important in the balance of strategic power in the world, the importance of dominating them rises proportionately. Lockheed's accomplishments in this mission have themselves a long history, matching each new generation of submarines with an effective counter; in the air, underwater or in space. As long as there is such a means of targeting hostile submarines, regardless of how silent they become, the dynamic equilibrium that has existed between the superpowers since World War II will continue. And peace will prevail.

Lockheed
Giving shape to imagination.

By Stephen S. Hall

A molecular code links emotions, mind and health

The classic view of the body as three separate systems is challenged as research points the way to the new medicine of the 21st century

Scientists tend to remember the day they arrive at a conclusion they are certain no one else is going to believe. For J. Edwin Blalock, that day came in 1981, when his research group at the University of Texas Medical Branch at Galveston found a biological molecule where it wasn't supposed to be. The molecule was a hormone called ACTH (short for adrenocorticotropic hormone); according to every medical textbook of the time, this hormone was made exclusively by the pituitary gland in the brain and "belonged" to the endocrine system. Blalock, working with his collaborator Eric Smith, kept finding it in the wrong place. They kept finding it in a laboratory flask filled only with human cells belonging to the immune system. In fact, they began to make the unbelievable suggestion that ACTH, a hormone, was made by white blood cells.

The scientific community politely cleared its collective throat in public and not so politely cast aspersions on the work in private. A commentary in the British journal *Nature* harrumphed about "radical psychoimmunologists" and went on to imply that Blalock's work lay beyond even that suspect fringe. "That was not a whole lot of fun," Blalock says now.

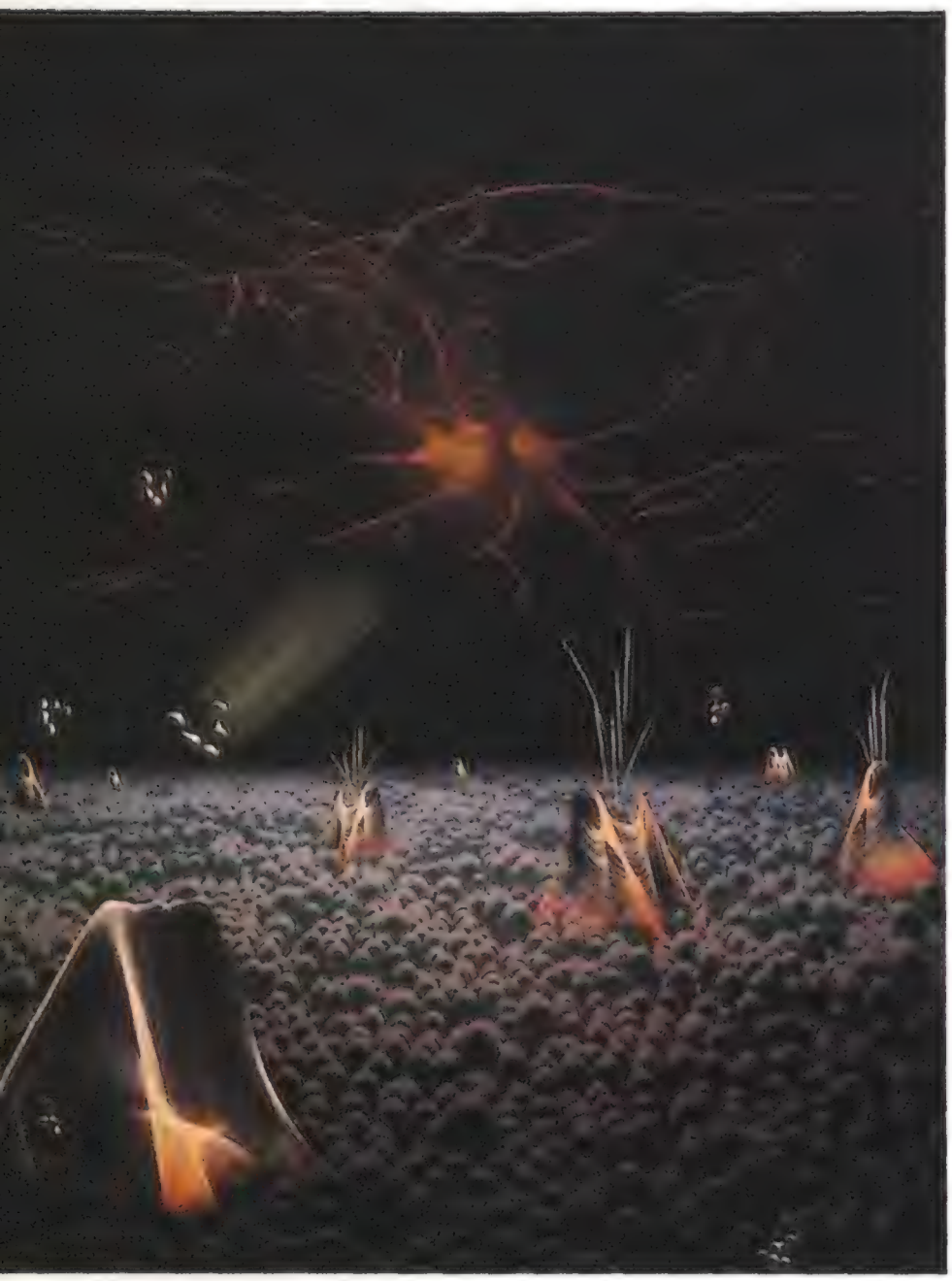
Before she joined the ranks of radical psychoimmunologists, Candace Pert was a doubter, too. When researchers suggested around the same time that white blood cells had qualities in common with brain cells, Pert—then chief of the Brain Biochemistry section at the National Institute of Mental Health (NIMH) in Bethesda, Maryland—reacted the way scientists often

Traditional view holds that endocrine (red), central nervous (gold), lymphatic (blue) systems are discrete.

But theory of psychoneuroimmunology says that
they are tied closely together via messenger molecules.

Photographs by Michael Freeman

Peptide researcher Candace Pert, a main proponent of psychoneuroimmunology, is working on AIDS cure.



Under branches of a distant neuron, the surface of a brain cell is studded with peaked peptide receptors. Like locks, the receptors "open" only with a specific key, in this case peptide molecules (flying V's). Once unlocked, receptors change shape, allowing other chemicals (dashed streaks) to flow in and out of cell.

do when things don't fit: they question the rigor of other people's science. "I thought perhaps the work was sloppy, shoddy, didn't have the right controls," she admits. "When you can't fit it into your cosmos, it's a lot easier to think someone else is a slob." Then Pert and her NIMH collaborator, Michael Ruff, began to find the same thing: certain white blood cells were equipped with the molecular equivalent of antennas tuned specifically to receive messages from the brain.

Getting set to tear down the barricades

As more and more of these "misfit" molecules turn up in unexpected places, some biologists believe we need to rethink some long-cherished principles, beginning with medicine's traditional separation of the central nervous system (the seat of thought, memory and emotion) from the endocrine system (which secretes powerful hormones) and the immune system (which defends the body from microbial invasions). To be sure, many other scientists argue that these misfit molecules are, at best, not well understood and, at worst, the product of unfit science. But scientists like Blalock, Pert and Ruff are prepared to declare a revolution. The barricades they seek to tear down separate nothing less than the mind and the body.

Bit by bit, these and other scientists are assembling a mosaic of data suggesting that our anatomical systems, separated by 19th-century tradition, routinely communicate with one another. Carrying the messages back and forth, moreover, are small, go-between molecules. There may be from 60 to 100 of these powerful biochemicals; traditionally known as neurotransmitters, hormones, neuropeptides, growth factors and lymphokines, these chemicals are now seen by some as a related family of biochemical words, essential turns of phrase in the vocabulary of life. Francis O. Schmitt, a neuroscientist at MIT, refers to them as "informational substances." As they are better understood, some researchers believe, they may assemble into the intercellular equivalent of the genetic code and may influence medicine in the 21st century the way research on DNA has influenced 20th-century biology.

Research on informational substances forms the molecular avant-garde of a relatively young scientific discipline that holds enormous promise. The discipline travels under various aliases—"psychoneuroimmunology" is perhaps the best known of several tongue-tying alternatives. The informational substances, many of which are known to have a powerful effect on mood and emotion, provide a molecular way to understand the long-suspected connection between state of mind and state of health.

How interconnected are mind and body? Ed Blalock, now at the University of Alabama at Birmingham,

believes the immune system functions as a sensory organ, just like the eyes or nose: white blood cells recognize what he calls "noncognitive stimuli," such as bacteria and viruses, and these immune system cells influence behavior by unleashing a gush of powerful biochemicals. In a similar vein, Pert, Ruff and their colleagues, then of NIMH, theorized about a "neuropeptide and psychosomatic network," where the mind and body constantly chatter back and forth using a vocabulary of biochemicals, the detectable result of which is the full range of human emotions. In their scenario, white blood cells are "bits of the brain floating around the body." They make and discharge hormones. They receive messages directly from the brain. They may even send messages to the brain that affect behavior, too.

What all this means is unclear, but some researchers are not bashful about speculating. "Just as there are only a finite number [of nucleic bases] that code for all forms of life, whether it be viral or human," says Pert, "there's going to be a finite number of information molecules that code for intercellular communication, whether we're talking about communication between two separate organisms or we're talking about intercommunication between the cells of your gut and the immune system and your glands and your brain."

It is not an easy scientific leap to make, as Pert herself acknowledges. At a meeting last year sponsored by the UCLA School of Medicine at Lake Arrowhead, California, she described a recurring dream about a giant chasm that separated the "old medicine" from the "new medicine." "And there's a guy on the other side who is telling me to jump," she told her colleagues, "and I'm scared to jump."

In truth, Pert's group has helped define the field in theoretical leaps and is taking a running start at the far side of that chasm, where the mind resides in the body as well as in the brain, and where emotions play an important role in disease and health. That world lies somewhere in the 21st century, but Pert is confident we are going to get there. "It's going to be so quickly forgotten," she predicts, "how controversial this all was."

It was another dream—possibly the most important and most debated dream in the history of philosophy—that helped build the walls that have so recently been set atremble by molecular biology. More than three centuries ago, on the morning of November 10, 1619, the French philosopher René Descartes awoke from a dream that, he revealed later, inspired him to embark on a lifelong philosophic mission. That metaphysical journey culminated in his most famous assertion—that the mind and the body are segregated into two separate branches of worldly existence.

Not that everyone subscribed to the idea, before or since. Aristotle was among the first to suggest the connection between mood and health ("Soul and body, I suggest, react sympathetically upon each other," he

Photomicrograph of cross section of mouse thymus enmeshes Karen Bulloch, who points out protective sheath (mauve) surrounding nerve fiber. The thymus, transplanted into a mouse without one, grew nerve fibers, showing importance of nerves to immune system.

once noted). Charles Darwin, too, believed the connection was important; it was a major premise of his largely overlooked book, *The Expression of the Emotions in Man and Animals.* And no less revered a practitioner than Sir William Osler, the turn-of-the-century physician described as the "father of modern medicine," once remarked, "The care of tuberculosis depends more on what the patient has in his head than what he has in his chest."

Aristotle, Darwin and Osler form an impressive trio of observers; all were struck by the apparent connection between mind and body, emotions and health. Yet all, too, were essentially powerless to sketch out that connection in anything but the broadest and fuzziest of strokes. The tools they brought to the task—dissection, microscopes, x rays and the like—simply were not powerful enough to discern the links. Only with the convergence of molecular biology, immunology and neuroscience have scientists begun to span the huge gap between emotions, mental processes and molecules.

One remarkable pioneer was Russian émigré S. I. Metal'nikov. Working at the Pasteur Institute in Paris with V. Chorine in the 1920s and '30s, Metal'nikov showed that classical (Pavlovian) conditioning could both suppress and enhance the immune response. At the turn of the century, Pavlov had shown that if you rang a bell shortly before presenting dogs with meat powder, the dogs mentally associated the bell with food and, after many repetitions, began to salivate solely at the sound of the bell. Metal'nikov paired such cues as heat, hand scratches and trumpet blasts with injections of bacteria that stimulated the immune systems of guinea pigs and rabbits. After repeated trials, the animals in effect "learned" to rev up their immune systems with a horn, suggesting that the central nervous system communicated with the immune system.

Two Americans stand out both as pioneer researchers in the field and as major figures in establishing its credibility. Psychiatrist George F. Solomon and colleague Rudolf Moos of Stanford University, in a landmark study of women published in 1964, demonstrated a link between emotional conflict and the onset and course of rheumatoid arthritis. Despite a genetic predisposition, certain women remained free of disease. "They were all emotionally healthy," Solomon recalls of the disease-free group. "They were not depressed. They were not alienated. They had good marriages. We felt that emotional health protected them from rheumatoid arthritis." The study, not surprisingly, provoked great skepticism in the scientific community.

The other historical giant in the field is psychologist Robert Ader of the University of Rochester School of Medicine. Ader is credited by some with putting psychoneuroimmunology (he coined the term) on the map in the 1970s in a series of groundbreaking experiments with Nicholas Cohen. Ader's rats were trained to associate an initial stimulus with a subsequent event. In this case, they "learned" to depress their immune system when given sweetened water. In other words, mere mental association could put a damper on the immune system—supporting Metal'nikov's precept that the central nervous system could influence the vigor of the immune system.

Connections, however, demanded mechanisms—demanded, literally, to be fleshed out, and at about the same time, links between the central nervous and immune systems began to provide some anatomical answers. Karen Bulloch, now of the University of California, San Diego, and David Felten of the University of Rochester medical school both have done pioneering work tracing nerve threads that run, like wires, from the central nervous system to two key immune organs, the thymus (Bulloch) and the spleen (Felten).

So the early research provided a rough anatomical sketch, suggesting areas where mind and body intersected. But all these links begged several fundamental questions. How could the central nervous system influence the immune system? Moreover, shouldn't there be two-way communication, with the immune system

Freelance writer Stephen Hall lives in New York City. He is author of Invisible Frontiers: The Race to Synthesize the Human Gene *(Microsoft, Seattle, 1988).*

talking back, as it were, to the central nervous system as well? And by what means did they communicate with each other?

At this point, the questions of psychoneuroimmunology began to overlap some longstanding puzzles of brain research, and that is where Candace Pert comes in. Although she set out to be an English literature major when she went to college in the mid-1960s, it was the precise science of psychopharmacology—studying the effect of drugs on the brain and behavior—that ultimately hooked Pert on the neurosciences. She went on to the Johns Hopkins School of Medicine for graduate studies. Trained there in the powerful techniques of modern biology, she began research that led to a bold new theory—that a relatively small family of molecules could be identified as the biochemical basis of emotions.

Working with Solomon Snyder, Pert in 1973 discovered an important biological landmark called the opiate receptor. Psychopharmacologists had assumed that in order to have an effect on the brain, natural pain-killing substances such as morphine and other opium-derivatives (known collectively as opiates) needed some specific way of interacting with brain cells. What Pert found was a molecule on the surface of the cell that accommodated the drug like a keyhole accepts the notches of a particular key. That cellular keyhole became known as a "receptor."

Opposite: White "hot spots" in brain image, dense with peptide receptors, occur where human emotions originate. Researcher Joanna Hill (above), using "tagged" molecules, found AIDS virus also attaches to receptors at similar sites (yellow) in monkey's brain.

As Pert later put it, "God presumably did not put an opiate receptor in our brains so that we could eventually discover how to get high with opium." If the body naturally made opiate receptors, the inescapable implication was that the body made opiates, too—natural "in-house," pain-killing molecules that resembled "foreign" molecules like opium, morphine and heroin. Implication became reality in 1975 with the discovery of the first in-house, or endogenous, opiate.

"The key thing about the opiate receptor discovery," Pert says now, "is that it pointed the way." As evidence accumulated, it indeed became clear that the human body is an impressive pharmacological factory. Since the early 1970s, beginning with the isolation of a pain-inducing peptide called substance P, about 50 similar molecules have been discovered. These peptides are formed by strings of amino acids—joined "like popette beads," Pert says—and like all proteins, each of these molecules folds into a unique three-dimensional shape that can be likened to the unique grooves and notches on a key. It interacts with a specific type of receptor just as a particular key, for example, engages only the tumblers of a particular lock. As with a lock, a small event such as the insertion and turning of the key leads to big changes—the biochemical equivalent of throwing a deadbolt—inside the cell. Here then were the elements of Pert's theory: these peptides and their receptors, she proposed, are the biochemistry of emotions.

The hormone insulin provides a good example of how these molecules work. Secreted by the pancreas into the bloodstream, insulin affects metabolism by allowing cells throughout the body to use glucose as a fuel. In the early 1980s, a group at the National Institutes of Health headed by Jesse Roth discovered insulin receptors on brain cells. Later they found that some brain cells *make* insulin and that, in the brain, insulin performs different tasks: by promoting cell growth, it acts as a growth factor instead of as a hormone, and by suppressing appetite, it also functions as a neuropeptide.

A molecular map of emotions

Peptides, like keys, are portable and they can move around; receptors, like door locks, are stationary, rooted to one spot. Candace Pert and her NIMH colleagues, principally Miles Herkenham and Joanna Hill, began surveying neighborhoods of the brain for specific receptors. They took very thin slices of rat brains and, using radioactively tagged molecules, created maps of specific receptors localized in the brain. Pert began to see these maps as a kind of molecular atlas of emotions, because certain dense clusters of receptors appeared in parts of the brain long associated with emotional processes (opposite).

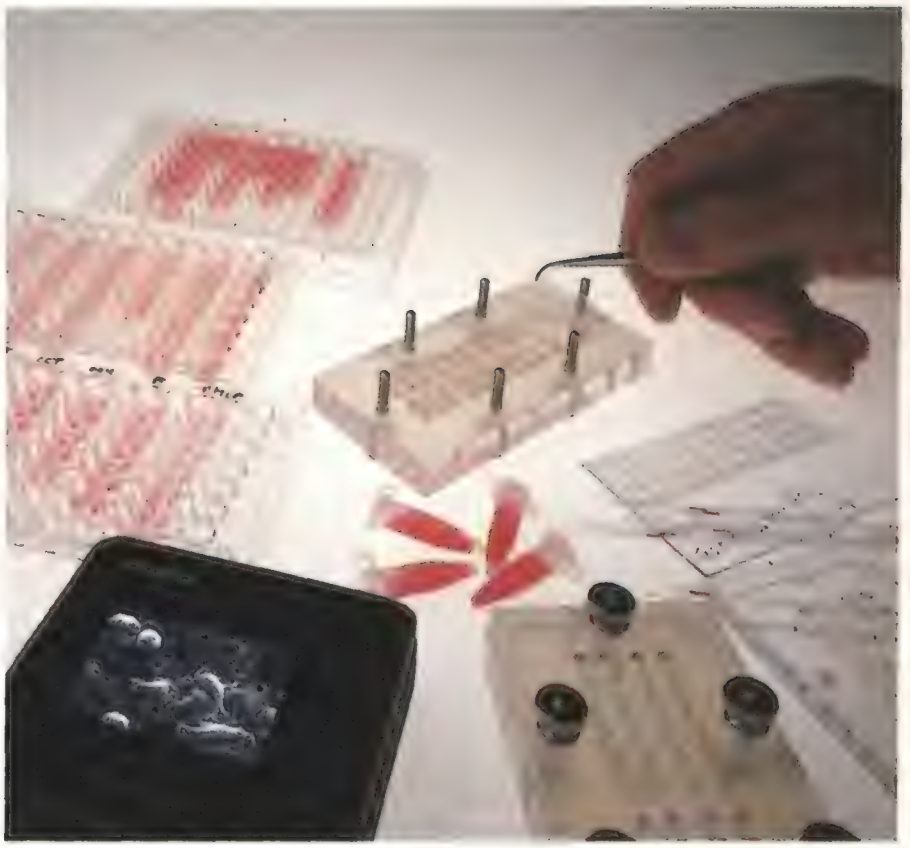
Pert refers to these "hot spots" as nodal points that seem to correlate with emotions. Three key neighborhoods of the brain—the frontal cortex, the hypocampus and the amygdala—are especially dense with many peptide receptors, as is a part of the spinal cord known as the dorsal horn, which runs from the neck to the tailbone and is a major point of convergence for sensory information. The nodal point that lies in the frontal cortex is not only rich in peptide receptors but is heavily threaded with specialized neurons associated with touch, smell, sight, sound and taste. In Pert's view, nodal points mark junctions where information molecules commingle and influence behavior. Indeed, she argues that some of the figures of speech we use out of habit have molecular underpinnings.

"Take a deep breath" is an injunction to calm down. Breathing is controlled in the brain stem, and research shows this region is saturated with opiate receptors; Pert even argues that changes in breathing—like those experienced by athletes and yogis—can alter the flow and concentration of peptides. Or consider "gut feelings." The stomach and gut are heavily wired with nerves and with receptors to many peptides. A pain-killing peptide, CCK, is released in the gut after a meal. Not only does it tell the brain to shut down appetite, but it also contributes to a feeling of well-being. "No wonder we feel so good after a great meal," Pert observes.

Even more surprisingly, researchers have found the same—or very similar—substances in other animals, in higher plants and even in single-celled organisms. Investigators were astounded recently to find that a substance virtually identical to insulin is made by a primitive unicellular protozoan called tetrahymena. The peptide that tickles yeast cells into mating seems to be a cousin of human gonadotropin releasing factor, which controls the release of human sex hormones. Prolactin, the hormone that stimulates the development of mammary glands in mammals, allowed fish to adapt to a saline environment in an earlier stage of evolution. The same powerful neurochemicals that alter mood in the human brain have been found on the skin of frogs.

What does this mean? It means, according to Pert, that evolution has plucked certain serviceable molecules and used them again and again—not just in humans but in all living creatures—to do what they do well. And what these molecules seem to do well is regulate, modulate and convey information. Whether it is a hormone that influences sexual urges, a neuropeptide that elevates mood, or even a chemical made by immune cells like interleukin-1 that can spur fevers, these substances clearly allow cells to talk to one another, and the cumulative din of those chemical conversations can make us feel frisky or euphoric or feverishly ill. "Emotions are so important in terms of regulating behavior, and regulating survival, that the very first successful evolution in that direction would be preserved," Pert believes. "It would tend to be used over and over again. After all, the great pleasures of life—eating and sex—are both necessary for survival, and there's tons of emotional wiring around those behaviors in humans."

Perhaps the most important mechanism for survival is the way the body preserves health and fends off disease, which is the province of the immune system.



Michael Ruff (left) studies model of macrophage, a white blood cell that relays chemical messages between brain and immune system. In a more conventional setting (above), he prepares an experiment to show how macrophages detect peptides, migrate toward them.

And that is where the misfit molecules really began to confound conventional thought.

The immune system is extraordinarily complex and fluid. Like branches of the armed services, it maintains a varied corps of task-specific cells in a perpetual state of vigilance and readiness. Some cells (monocytes) act as sentinels, others (antibodies, and natural killer and cytotoxic T cells) as infantry and artillery; some (helper and suppressor T cells) rouse or mute the general alarm, and others (macrophages) come around to clean up the battlefield and cart off the results of the carnage. Humans can generate up to one billion different antibody molecules to attack foreign invaders. The system is sophisticated enough to "remember" any invader, which is why vaccination works—it gives the immune system something to lodge in its memory cells. And it is amazingly self-preservative—when an individual suffers a severe, hemorrhaging injury leading to massive blood loss, these crucial memory cells know enough to seek refuge in the bone marrow, so they won't bleed out onto the street.

How do these cells coordinate this flurry of activity? The answer is that they send messages to one another. A cell will send a message by squirting one of those very small, short-lived molecules known as peptides. And in order to receive those messages immune cells also need to have receptors. Back in 1976, Nicholas Plotnikoff of Oral Roberts University first reported that immune cells possessed, of all things, the opiate receptor (in other words, immune cells theoretically received messages from the brain).

In his work at the University of Alabama, Blalock, coming from the other direction, has reported that immune cells can make the mood-altering brain peptides known as endorphins.

One of the most intriguing networks has been worked out by Michael Ruff at NIMH. His work has concentrated on macrophages, once derided as the "garbage collectors" of the immune system. When first formed in the bone marrow, macrophages enter the bloodstream as nomadic adolescent cells called monocytes. Monocytes are among the first cells to spot a foreign intruder and raise the alarm. Later on, monocytes can settle down in the skin, lungs or brain and take up permanent residence as macrophages.

Ruff's research shows that these cells, in motion or at rest, have enormous potential for sending and receiving biochemical messages. Macrophagelike cells in the brain (called glia) possess receptors to powerful molecules made by the immune system; both monocytes and macrophages have receptors on their surface that accommodate virtually every neuropeptide known. Because of these cells' movement and informational dexterity, Pert and Ruff call them "mobile synapses."

Helper T cell (center) coordinates other immune cells, including macrophage (top left), a mobile link to brain.

What all this work has established is that there are the molecular equivalent of telephone lines between the brain and immune system. "What we have done, with the help of others, is maybe pointed out the molecular basis for the communication between these systems, but that's all," says Joanna Hill of the Pert lab. "You don't know if it is being used, and you don't know what's being said." One obvious—and difficult—next step in research is to eavesdrop on those conversations; a more distant goal is to enter into the dialogue pharmacologically to aid healing.

The mere existence of those lines of communication, however, convinces Ed Blalock that the immune system is a sensory organ as much as the eyes or ears. "The immune system serves to recognize and sense those things you can't hear or taste or touch or smell or feel, things that are not recognized by any of the other senses," he says. "If you came into contact with a grizzly bear, for example, the visual recognition would evoke the production of stress hormones, which would change your physiology in a way that would help you deal with the situation. If your body comes into contact with a virus, you can't see it or smell it or touch it. But your physiology needs to change nonetheless. Well, our argument is that your physiology changes when your immune system senses it and produces the hormones that change physiology."

It bears repeating at this point that many—perhaps the majority—in the scientific and medical communities view these developments with wariness, if not outright disbelief. Part of this skepticism is the legacy of overblown, unsubstantiated claims connecting stress with illness or certain personality traits with cancer. In a 1985 editorial in the *New England Journal of Medicine*, Marcia Angell called the connection between emotions and health "largely folklore" and argued that the "literature contains very few scientifically sound studies of the relation, if there is one, between mental state and disease."

Nonetheless, as data accumulate, that vast gulf between molecules and state of mind is being gradually closed. "I used to say we were at square one," says Robert Ader. "Now I think we're at about square three."

Ronald Glaser and Janice Kiecolt-Glaser, both of Ohio State University, have done studies of first-year medical students showing that during periods of academic stress (just before or during exam week), the immune function suffers both in numbers of cells and in the ability of cells to perform. "It suggests," says Kiecolt-Glaser, "that even commonplace events that we associate with emotional arousal or discomfort can be associated with [decreases] in immune functions." When the students return after summer vacation, normal vigor has returned to the immune system.

Trying to track the signals

Robert Ader's recent work with rats suggests that behavior may somehow be influenced by the immune system—more evidence pointing toward the long-sought feedback mechanism where the immune system affects the central nervous system. He has shown that a special breed of laboratory rat defies the normal aversion to water laced with the nausea-inducing drug cyclophosphamide. When the drug is paired with sweetened water, rats with systemic lupus erythematosus—a disease caused by an overly aggressive immune system—ignore the unpleasant side effects and continue to drink. Cyclophosphamide also depresses immune function, but that is beneficial for lupus-prone animals and their hyperactive immune systems. "The animals know it's 'good' for them, as it were," says Ader. "Signals generated by the immune system are being read by the central nervous system. What that signal is and where it is going—that I don't know."

Even AIDS can be viewed through the prism of psychoneuroimmunology. Candace Pert and her NIMH colleagues have advanced a hypothesis that AIDS is a disease rooted in the disruption of peptide communication. Specifically, her group argues that a

portion of the AIDS virus' external spike, used to gain entry to cells through a particular receptor, actually mimics a ubiquitous neuropeptide known as vasoactive intestinal peptide (VIP). This molecule is active not only in the gut, but also in the brain, where it apparently promotes the growth and health of neurons. When the AIDS virus attaches to the VIP receptor, it preempts the activity of VIP, and neurons die. Pert believes this is the cause of the dementia that afflicts many AIDS patients.

Viewing the disease as a peptide disorder, the NIMH group has gone on to design a protective peptide that covers the receptors of neurons like a cap and prevents the AIDS virus from attaching (below). Called peptide T, in small-scale clinical trials its use has been accompanied by significant physical and neurological improvement. Whether peptide T works or not—and there is considerable skepticism in the scientific community about it—it represents a novel departure from traditional disease treatments, such as vaccines and antibiotics. So optimistic about the possibilities is Pert, she and Ruff have formed a biotechnology company called Peptide Design L.P.

There is a sign in Pert's new office that reads: "If you are being run out of town, get out in front of the crowd and make it look like you're leading a parade." There are still a lot of people raining on this particular scientific parade, but Pert and her allies are convinced they are on the right track. "I've got the goods, the little nuts and bolts, the peptides," she likes to say. "Our work is just beginning to prove some of this. A lot of this has been my interpretation of the significance of my lab's work. But I know it's right." Scientists don't often talk that way, at least for public consumption. Revolutionaries do, however, and as far as Candace Pert is concerned, we're in the midst of a revolution.

Pert believes an AIDS virus (top) infects cell when one of its protein spikes binds to peptide receptor on cell's surface. Peptide T molecules (flying V's) block access of virus' spikes by occupying all receptor sites.

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Technician aims color camera during 1951 test. Bulk, complexity made early equipment suitable for use mainly in studios. Today's battery-powered minicams can be taken anywhere to transmit live via satellite. Older equipment depended on conventional power.

By Desmond Smith

TV news did not just happen—it had to invent itself

And it wasn't easy. In the beginning, there were clocks, maps, newsreels, ugly mikes and big cameras; also one chimpanzee and some puppets

As the creator of *60 Minutes*, Don Hewitt is one of the best-known, highest-paid producers in TV news. In the summer of 1946, he was a 23-year-old former war correspondent looking for a job. When he swaggered into the offices of the *New York Herald-Tribune*, still wearing his uniform, he learned that the only position available was the same one he had when he worked there before the war—copy boy. Eventually he became a photo editor for Acme Newspictures, where, a year later, a friend phoned him about an opening at the Columbia Broadcasting System (CBS) for someone with picture experience.

Hewitt was puzzled. "Why in the hell would CBS want someone with picture experience?" he asked. "They don't need pictures in radio."

"Not radio," his friend said. "Television."

Hewitt said, "What-a-vision?"

"*Television.*"

"You mean you sit home and look at pictures in a little box?"

"Yeah," his friend said.

Hewitt said, "Nobody's got that. It's Buck Rogers."

Walter Cronkite and two bareheaded technicians in convertible show how television covered special events back in '52. Camera produced black-and-white image, which microwave dish transmitted to pickup point.

John Cameron Swayze hosts *Camel News Caravan* with cigarette pack displayed prominently at his elbow.

Edward R. Murrow (at desk) listens while Charles Collingwood (far left) talks on CBS *World News Roundup*. Other correspondents are (from the left):

"*They've* got it," his friend said.

"The hell they have," Hewitt said.

"The hell they haven't," his friend said. "You want to see it?"

So Hewitt went down to CBS's cavernous studio in Grand Central Terminal, talked to some people—and got hired as an associate director. "I walked in and there were cameras and booms and lights and I felt like Judy Garland in the Emerald City," he recalled during a recent interview. "I couldn't believe the place. And that's how I got into television."

Don Hewitt wasn't the only hard-boiled newsman in the years right after World War II who put television on a par with Dick Tracy's wristwatch. It was something that could happen, indeed probably would happen, but not for a long time. Back then, people got their news from radio, papers and the newsreels shown at movie houses. Radio was big and getting bigger, reaching audiences in the tens of millions. Top news commentators like Raymond Gram Swing, H. V. Kaltenborn and Gabriel Heatter had little regard for television, a medium with almost no audience and few advertisers. "No one in radio wanted to have anything to do with us," recalls Art Lodge, who was a television news writer with the National Broadcasting Company (NBC) in 1950 and became a producer.

The problem, according to Reuven Frank, was that television did not look like a good bet for the future. Frank was president of NBC News from 1968 to 1973, and again from 1982 to 1984. He was hired as a television news writer in 1950 after visiting the network's screening rooms at 106th Street and Park Avenue in the old Pathé Building. Like Hewitt, Frank, then 29, had no radio or television experience; he had been working as a night city editor at the *Newark Evening News*. "I asked this guy how come he hired me," he remembers. " 'Well,' he said, 'Nobody in radio who is worth anything thinks it's gonna last.' "

Under the circumstances, that wasn't surprising. Television news had barely begun to invent itself. Walter Cronkite, a gutsy war correspondent and former Moscow bureau chief for United Press, entered the broadcasting booth in 1950 as the first reporter assigned exclusively to television in CBS's Washington bureau. In those days, television news was still a hybrid of newsreels and radio-style reporting. Videotape, minicams and three-way satellite hookups had not yet been

Desmond Smith is the senior producer of Venture, *the Canadian Broadcasting Corporation's business program. He has worked for ABC, NBC and CBS.*

Ned Calmer, Winston Burdett, Eric Sevareid, Bill Costello, Larry Lesueur, David Schoenbrun, Howard K. Smith and Richard C. Hottelet.

Murrow, who was admired by GIs for going where they went, conducts interview with rifleman in Korea.

developed. There was no such thing as computer graphics or instant replay. No one had ever used the word "anchorman" (let alone "anchorwoman"). Ted Koppel was 10, Diane Sawyer was 5, Connie Chung was 4. There were only about 10 million homes with television sets in the entire country, compared with more than 90 million today.

By 1970, things had changed. Most Americans were getting most of their news from the tube and the three networks, CBS, NBC and ABC (the American Broadcasting Companies), were getting better and better at providing it. The anchormen and reporters talking to people in their kitchens and living rooms had become so familiar it sometimes seemed as if they were members of the family. Cronkite, the eager young newscaster of the 1950s, was maturing into the trusted father figure of the '70s and would become the silver-haired Uncle Walter of the '80s, loved by millions, voted in polls the "most trusted man in America."

This is the same Walter Cronkite, mind you, who in 1954 played straight man to a puppet. It happened after he was appointed host of CBS's new morning show. Since one of the stars of NBC's hugely successful *Today* show with Dave Garroway was a chimpanzee, the creative minds at CBS decided to pair Cronkite with several puppets, including one named Charlemagne the Lion. It didn't work and eventually Cronkite was replaced by Jack Paar. Cronkite received a number of letters from viewers who were not happy to see him go. Among them was one that said, "Jack Paar won't be as good in the morning as you. I know—I'm his mother."

That sort of silliness was fairly typical of the often wacky era in which network news came of age. It began in 1951, when it became possible to operate a network coast-to-coast, using a combination of coaxial cable and microwave relays. It ended in the early '60s, when the evening news programs were expanded to 30 minutes, ushering in a new period of growth and technological sophistication. During the golden years between those two benchmarks, the pioneers of network news learned how to do their jobs.

By the end of 1948, the year Don Hewitt joined CBS News, the CBS television "network" consisted of fewer than 30 stations. Hookups were such that programs originating in New York couldn't even get as far as Chicago. When CBS's first evening news program, *Douglas Edwards with the News*, started up, its audience was barely measurable. In time, however, it would become the most-watched weeknight news program on television, with some 38 million viewers—

Walter Cronkite, the host of CBS's morning show in the mid-'50s, discusses the day's news with a puppet.

NBC *Today* host Dave Garroway gives familiar sign-off as frequent guest, chimp J. Fredd Muggs, looks on.

a greater "circulation" by far than any newspaper or magazine in the world.

There was never any question in William S. Paley's mind that television was the wave of the future. The son of a wealthy cigar maker, Paley took over the fledgling CBS radio network in 1928. In the 1930s, he began hiring people for radio who he felt would be good in the new medium. Now nearing 90, Paley is still chairman of CBS and recently, surrounded by Picassos and Dubuffets in his magnificent office on the 35th floor of corporate headquarters in Manhattan, he talked about the way it was. "I saw the war coming, so I phoned Ed Murrow, who was in Europe lining up speakers for our talk programs. I told him to hire some good people." Murrow hired some of the best reporters in the world, including William L. Shirer, Howard K. Smith (who later became an anchorman at ABC), Robert Trout, Eric Sevareid and Charles Collingwood.

As Paley had anticipated, a number of the journalists Murrow signed up eventually formed the nucleus of the CBS television news team. They already knew how to go out and "get" a story, and then present a concise analysis of what they had learned. After a little training and some on-the-job experience, they began to get familiar with the video dimension.

Until the early 1950s, when they began hiring their own cameramen, the networks relied on the newsreel companies to provide their filmed material. The newsreels usually sent a script along with the film, which writers at the networks would redo. Phil Scheffler, the senior producer of *60 Minutes*, worked with Douglas Edwards. "One afternoon we opened a can of film," he recalls, "and the caption said, 'Hordes of Chinese prisoners captured on the west coast of Korea.' I remember saying to producer Don Hewitt, 'This footage looks awfully familiar,' and Don agreed. We looked back in our files. Sure enough, a month earlier the newsreel people had sent us the same footage, only that stuff was captioned, 'Hordes of Chinese prisoners captured on the east coast of Korea.' "

The earliest newscasts were pretty crude. No invisible boom mikes, no offscreen Teleprompters, no glitzy sets, no hookups to live action in faraway places. The newscaster simply read the news directly from the written page into a big microphone located smack-dab in the middle of a plain desk. Then some smart young director decided to hang a clock in the background, just so the audience would know it was all happening live before their eyes. Then an even smarter young director on a rival network added a second clock with the time on the West Coast (even though no one on the West Coast could watch New York television before 1951). Pretty soon it degenerated into a game of "Can you top this?"

Are you ready for a Saab, or do you have to be taken for another ride?

Your mother told you to be careful whose car you got into. Did you forget?

Have you spent the past four or five years trapped in a car with a bunch of empty promises?

If you have, take heart. It's never too late to put good advice into practice. You can do it at your Saab dealer's.

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If Douglas Edwards at CBS had three clocks and a calendar, then NBC's John Cameron Swayze, a dapper man who usually wore a red carnation in his buttonhole, had to have a map. So maps proliferated. Not to be outdone, Edwards' producer added a world globe, a black telephone (evidently in case Edwards had a sudden urge to call the President), In and Out baskets, and an executive pen set. "It was fatuous and meaningless," says Sandy Socolow, now the executive producer of *World Monitor with John Hart.* "I'm not sure anyone cared except the 10 or 12 people in each network's newsroom. For them, it was fun."

Socolow was a writer with a "news of the day" type program on the old Du Mont network, which went out of business in the mid-'50s. The program was sponsored by Bond, which was (and for that matter still is) a large-volume men's clothier in Manhattan. The newscaster for that program was a hard-driving professional named Mike Wallace. "Every evening Mike would show up for the 15-minute broadcast, get out of his street clothes and into a Bond suit," Socolow recalls. "After delivering the news, he would stand up and the camera would follow him as he moved from behind the desk to another area. Here Mike would go into an impassioned spiel about Bond suits, pointing out special features about the one he had on and usually concluding with an offer to sell you a suit just like it—with not one but *two* pairs of trousers."

That kind of commercialism was pretty much par for the course in television's early days; it was a holdover from radio. Many radio programs, including the news, were bought by the sponsors and controlled by their advertising agencies. NBC's first regular nightly news telecast was sponsored by Camel cigarettes. It was called the *Camel News Caravan.* As part of the contract, the advertising agency insisted that an ever-lit Camel cigarette must be burning in an ashtray located prominently at John Cameron Swayze's elbow. "The ad people were insatiable," according to Reuven Frank, who was one of the *Caravan* writers. "They wanted 'Camel' to show up in every picture." But they did not want cigars to show up at all. There was, Frank says, a "gentleman's agreement" to avoid shots of people with cigars. The single exception permitted was Winston Churchill.

Sponsor influence extended even to the coverage of special events. The matchup between Senator Robert Taft and Gen. Dwight Eisenhower at the 1952 Republican Convention made gripping television, and so did the emergence of Senator Adlai Stevenson at the Democrats' get-together. But an attractive TV hostess named Betty Furness stole the spotlight at both shows. Furness (below) was the spokesperson for Westinghouse Electric Corporation, which sponsored all television coverage by CBS at both conventions that year. Day after day, she talked about the finer points of refrigerators and ranges while the cameras cut back and forth between the floor fights and the sponsor's kitchen set. By the time the conventions were over, it seemed to many viewers that Furness had filled more airtime than the nominees—and, in fact, she had.

After the 1948 conventions, which were the first to be commercially telecast, network news and politics became entwined like ivy on the college wall. Most nightly newscasts carried a lot of Washington news. One reason was its availability. News from Europe had to be shipped by plane. News from the Soviet Union, Eastern Europe, China and most of Africa wasn't available at all. But from 1948 on, all three networks had a

Westinghouse spokesperson Betty Furness stole the TV spotlight from politicians at the 1952 conventions.

Text continues on page 86

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A spate of new toys invades America's living rooms

A half-century ago, President Franklin D. Roosevelt opened the New York World's Fair with a prescient message. "All those who come to the World's Fair," he said, "will find that the eyes of the United States are fixed on the future." He was right. For, at about 200 sites in the New York metropolitan area, people were not only hearing the President's familiar voice but seeing his living image as well. And out at the fairgrounds, visitors found their own eyes fixed on a newfangled contraption encased in a transparent box (p. 85), one of the fair's star exhibits. And that box *was* the future.

The fair's visitors queued up, as television historian Erik Barnouw tells us, to catch snatches of opera, ice skating at Central Park, celebrities at the opening of *Gone With the Wind*, and cooking demonstrations—confined to making salads, as heat from both stove and studio lights proved too hot for chefs to bear.

Artifacts from the dawn of the television age—including screens all of three inches wide set into cabinets that mimic radios, consoles that snap open to reveal pop-up screens, and the Lucite-encased TV from the 1939 fair—form the nucleus of "American Television: From the Fair to the Family, 1939-1989." The show continues at the Museum of American History through April 1990.

Sales of television receivers took off after the war, as Americans displayed their first set as the centerpiece of their home. Annual production went from 175,000 in 1947 to 5.2 million in 1950, made by 140 manufacturers, including Philco and Motorola.

Few families owned more than one TV then, and manufacturers went to great lengths to merchandise television as a way to draw families together. Programs presented the drama and comedy of domesticity, whether set in the close urban quarters of the *Goldbergs* and the *Honeymooners*, or in the idealized suburban households of *Father Knows Best* and *Leave It to Beaver*. Advertisers seized on the power of the new medium. The sponsors of children's programs, for example, inundated young viewers with elaborate gimmicks, from Roy Rogers magnifying rings to Captain Video board games.

Today, we can catch the afternoon soaps on a wristwatch-size screen (opposite), and huge maxiscreens loom in our living rooms. There's no doubt that FDR's 1939 prediction was correct. Yet, at about that same time, humorist Fred Allen characterized television as "chewing gum for the eyes." A half-century later, that remark still has bite.

William L. Bird jr.

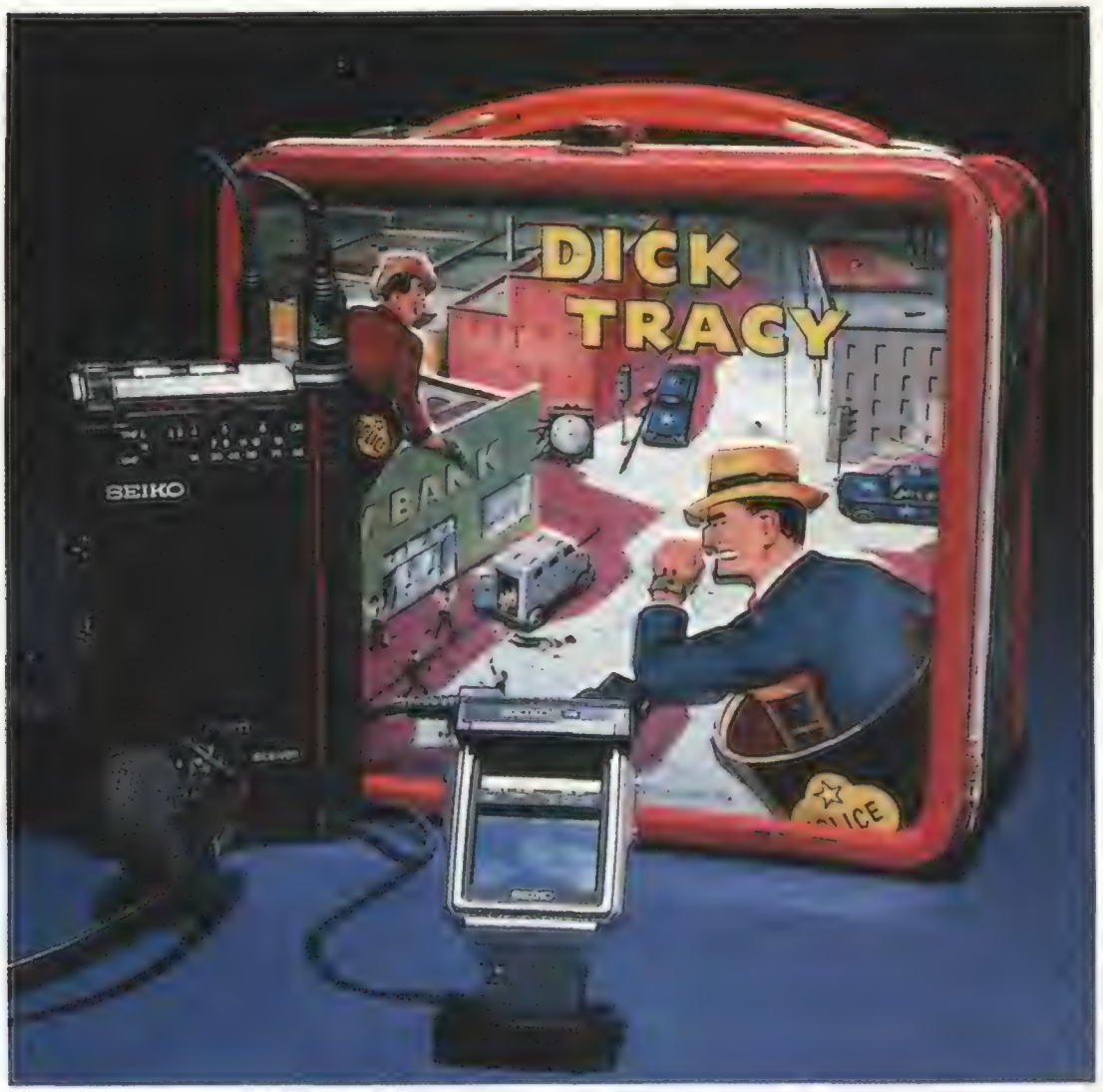
RCA Victor television console unveiled in 1948 had a pop-up screen; mirrors brought image to its surface.

Awa-a-y we go 1955-style, with Loudmouth, a June Taylor dancer, Poor Soul, Reginald Van Gleason III.

TV premiums, c. 1950, helped kids pretend to be Sky King, Lone Ranger, Captain Video, Roy Rogers.

Atop TV, Lucite lamp providing indirect light and retractable rabbit ears were innovations suggested by decorators.

An early TV receiver, from 1939, mimicked a piece of furniture, as radios had done.



On a 1967 lunchbox, Dick Tracy foils robbers with his two-way wrist TV; by the early 1980s Seiko marketed the real thing.

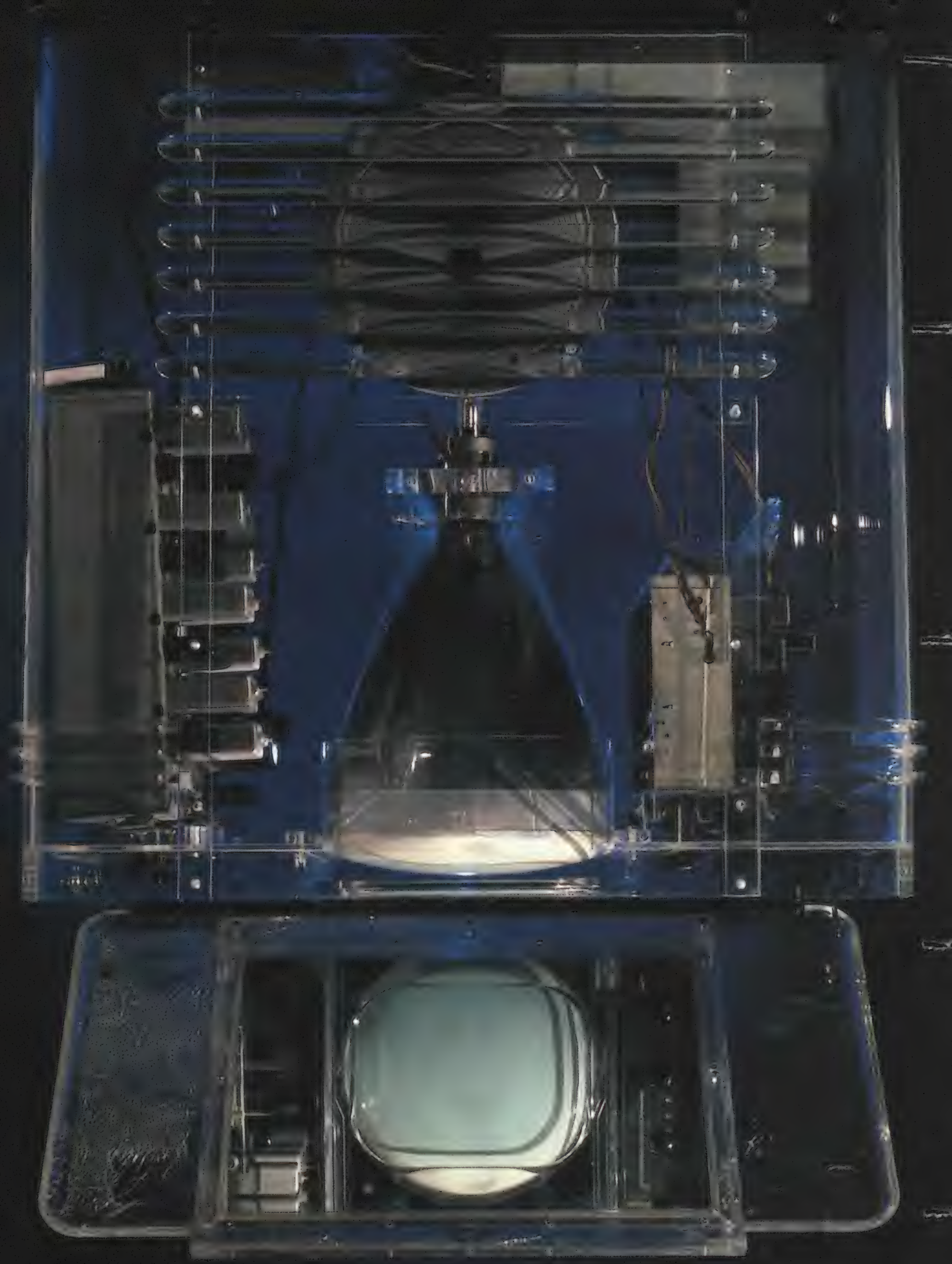
Photographs by Dane Penland

Sold by the thousands, mineral-oil magnifying lenses came on the market about 1948 as part of the endless quest for the bigger picture.

Captain Video Space Game was hawked to young viewers in 1950 in conjunction with the popular show.

"Send in before midnight tomorrow," a radio voice intoned, "and you'll get your Tom Mix toy televison."

Crowds of Americans stared at Lucite-encased TV at 1939 World's Fair; it's been staring back ever since.



coaxial cable joining Washington and New York. Congress always had a story or two in the works and politicians were usually willing to talk.

Dwight Eisenhower was not comfortable with television; his predecessor, Harry Truman, was. Truman became the first "television President." Homey, outspoken and accessible, he was made for the medium but the medium often had a hard time keeping up with him. CBS cameraman Herb Schwartz was covering Truman on one of his visits to New York.

Getting a leg up on Harry

"Every morning when he came out of his hotel for his daily walk," Schwartz says, "we'd be waiting with our cameras rolling, and he'd just walk off briskly down the street. CBS had just developed a portable sound-on-film camera and we decided to test it out on Truman." The camera was battery operated, so Schwartz and his colleagues made up a tray, like the kind cigarette girls used to hang around their neck, and put the battery and other apparatus on top of it. When Truman stepped outside, they were ready. "He kept walking and talking for several minutes," Schwartz says, "which was about as long as we could manage to keep walking backwards in front of him. We ran most of it on the news that night."

In New York, Ed Murrow and his longtime radio associate, producer Fred Friendly, added a new dimension to the relationship between Washington and the networks with an extraordinary documentary program that debuted on Sunday, November 18, 1951. Viewers who tuned in that night saw Murrow swivel in his chair, squint directly at the camera and say, "Good evening. This is an old team trying to learn a new trade." He was 43. Friendly was 36.

The program was called *See It Now* and it set a new standard of hard-hitting journalism for television news. Once *See It Now* got rolling, many Washington politicians and bureaucrats who previously had been only too willing to sound off in front of the cameras began ducking out the back door. The program's impact was tremendous because it was so bold. It took on such topics as the plight of America's neglected migrant workers, the discharge of Airman Milo Raduvolich as an alleged security risk and an argument over the right of free speech in Indianapolis. There was nothing else like it on television—certainly not the regular newscasts, locked as they were into 15-minute digests of the day's happenings.

See It Now became audacious in its presentation, too. It originated from a television control room, not just a set, establishing a realistic format that is still standard in TV news today. It became noted for its thorough reporting and incisive editing. It also broke

Douglas Edwards (right) and director Don Hewitt discuss item for Edwards' popular CBS news program.

Chet Huntley (left) and David Brinkley team up for first time on NBC during 1956 Democratic Convention.

new ground by taking advantage of television's ability to move around. Its film cameras went everywhere. In one astonishing piece of legerdemain, the viewer at home saw Murrow look up at two TV screens, one with a picture of New York Harbor, the other with the Golden Gate Bridge in San Francisco. "Three thousand miles," wrote one critic, "compressed to the vanishing point. . . . This was television."

The program's most enduring legacy, however, was its willingness to tackle tough issues. And the best example was its unflinching look at Joseph McCarthy on March 9, 1954. The ultraconservative Senator from Wisconsin was then at the height of his anticommunist crusade. For years, he had bullied and outmaneuvered journalists and politicians alike. Murrow and Friendly showed McCarthy in action, then analyzed his charges and tactics. "This is no time for men who oppose his methods to keep silent," Murrow editorialized at the end. "We can deny our heritage and our history but we cannot escape responsibility for the result." Viewer reaction was overwhelmingly favorable.

In the late 1950s, the rivalry between NBC and CBS intensified with the arrival of Robert E. Kintner as president of NBC. A onetime Washington columnist turned broadcasting executive, Kintner had previously worked for ABC. He was a hard-driving, ferociously competitive man who conducted rounds of dictation with as many as three secretaries at once. He was determined to make sure NBC was never beaten on a news story. He had three television sets in his office, one for each network, and whenever he saw something that displeased him he promptly fired off a memo to his news chief, William McAndrew. His record: 35 memos in two days.

Getting an exclusive with Fidel

During that period, news producers were putting more and more emphasis on getting their reporters and their cameramen into the field. In 1957, much to NBC's chagrin, CBS managed to get a team into the Sierra Maestra of Cuba for ten days of interviewing and filming with Fidel Castro. Then a 31-year-old revolutionary lawyer, Castro predicted that he and his followers would soon overthrow the regime of President Fulgencio Batista. Earlier, Batista had claimed that his 50,000-man army had wiped out the rebels, but an American newspaperman challenged that assertion. CBS decided to take on the dangerous task of finding Castro and getting an exclusive interview on the air.

Veteran cameraman Wendell Hoffman went to Havana with reporter Robert Taber for a prearranged rendezvous with Castro in a secret mountain camp. Since any such contact was strictly forbidden by the Batista government, Hoffman had to find a way to conceal his 250 pounds of equipment from troops in the

Reporter Mike Wallace, looking more like an astronaut, posed with TV camera for portrait some years ago.

field and at military roadblocks. The problem was solved for him by Castro's emissaries, who devised a way to hide the gear in the side panels of the automobile the party would be using. When Hoffman learned they would also be trekking through mountainous terrain, he gave away his 90-pound tripod. It took Hoffman and Taber two days to cross Cuba, and several more days of climbing. "It was tough," says Hoffman, who now lives in Manhattan, Kansas. "I got blisters as big as silver dollars from fording rivers and then walking in wet boots."

The newsmen spent ten days with Castro and his men, filming every day. Then, after struggling back down the mountains and driving 150 miles through roadblocks, Hoffman caught a plane to New York. The stories made from the film—on the evening news and in a documentary special—created a sensation. There was no doubt, after the CBS pictures, that Castro was alive and well. Not quite two years later, he entered Havana in triumph—a victory he had foretold in halting English before Wendell Hoffman's camera.

A postscript. After being congratulated on his coup by John Day, then the president of CBS News, Hoffman dropped in on the camera department. "Where's the camera?" the supervisor asked. Hoffman, all six feet two inches of him, glared down at the man. "The camera weighed 50 pounds," he explained. "I had to carry it up the danged mountain but I was danged if I was going to carry it back. If CBS wants that chunk of metal so much, why don't *you* go back to Cuba and get it?"

By the late '50s, the CBS and NBC networks had grown to about 200 stations apiece (ABC was far behind), which meant that almost any place in the United States where news was happening, a crew could cover it and send it back to New York from a local affiliate. A little more than a decade later, the sky would no longer be the limit for television. The orbiting of American communication satellites would put the delivery of news into outer space.

The competition kept heating up. After NBC introduced *The Huntley-Brinkley Report* in 1956, based on the novel idea of using two anchors instead of just one, Douglas Edwards' longtime lead in the ratings began to evaporate. David Brinkley, a witty young Southerner with curly brown hair and a mischievous grin, had been a writer at the network's Washington station. Chet Huntley, a somber, solid citizen from Montana, had been working as a newsman in Los Angeles. Together they became the most famous duo in the history of television news. Their sign-off—"Good night, Chet" . . . "Good night, David, and good night for NBC News"—was Reuven Frank's brainchild and pretty soon people were saying it all over the country.

Huntley was cast in the Murrow mold. Sometimes Brinkley refused to take the news all that seriously. Once, following a debate in which the Republicans wanted to change the name of Boulder Dam to Hoover Dam, Brinkley suggested that everything would be all right if the former President "would change his name to Herbert Boulder."

One era ends, another begins

By 1963, television journalism's adolescent period was just about over. The business was going to get larger, more powerful and even more competitive. ABC made its big move into news in 1963 when it hired Elmer W. Lower, a onetime *Life* magazine writer and CBS News Washington bureau chief, as president of its news division. And 1963 was also the year when the evening news got longer. Confronted with the huge ratings success of the Huntley-Brinkley team, CBS had replaced Douglas Edwards with Walter Cronkite, who had presided over the coverage of three national conventions and all of the U.S. space shots. Next, it announced that it was taking the evening news from 15 to 30 minutes. NBC quickly followed suit. ABC went to the half-hour format in 1967.

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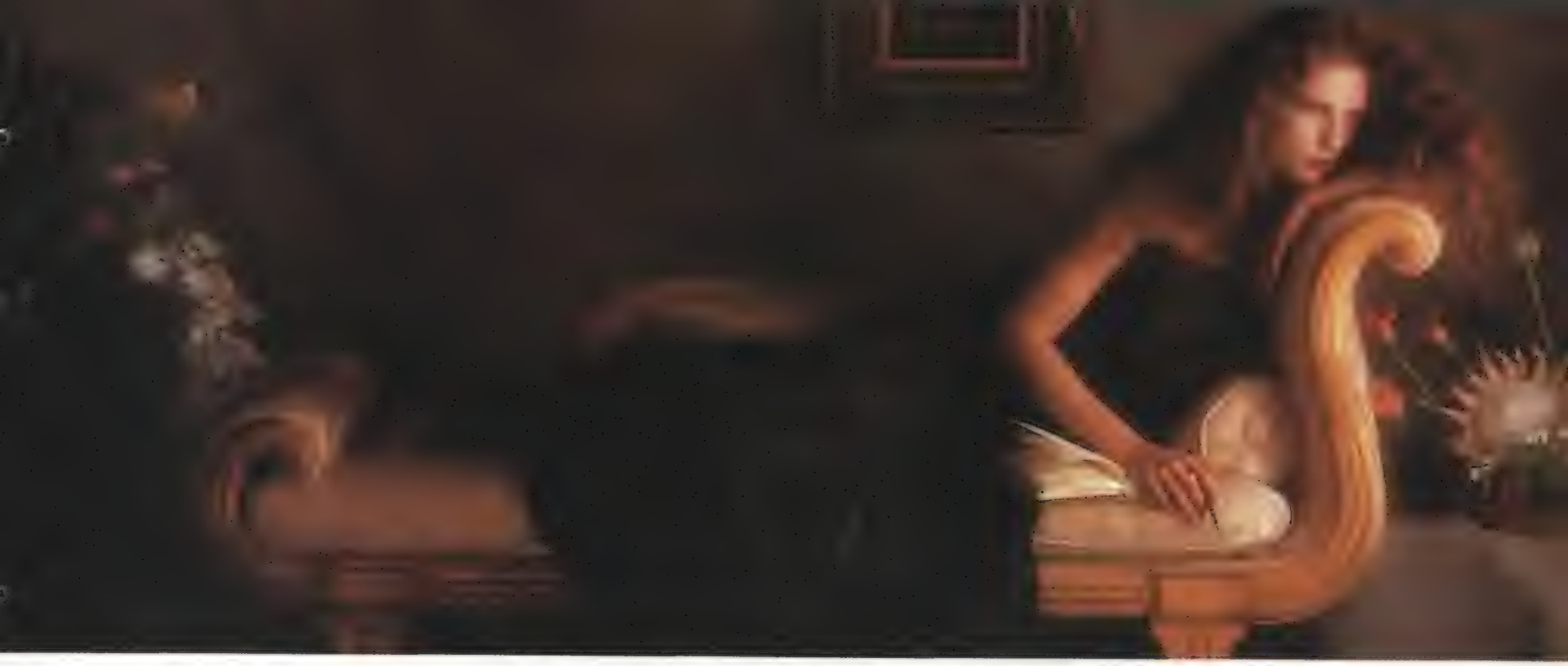
On Cronkite's first half-hour broadcast, President John F. Kennedy appeared for a "conversation" with the newscaster. Eighty-one days after that, Kennedy's assassination in Dallas wrenched television news into a new era. Cronkite the anchorman became Cronkite the family man, reliving the events of that terrible week with a grieving nation. A decade earlier, television news had possessed no such power, no such editorial abilities, no such technical resources.

Today, the networks are in trouble. Declining audiences, soaring costs, and competition from cable, pay and satellite TV have ushered in yet another era—this time one of austerity that puts new pressures on news operations. It's hard to predict how Americans of the next century will learn about what's going on, but one thing seems fairly certain: reporting the news won't be as much fun as it was in the beginning.

There was, for example, the time when a plane crashed in New York's East River and Don Hewitt, then an evening-news producer, chartered a tugboat to visit the wreck site with a CBS camera crew. A crew from NBC arrived about the same time in a rowboat with an outboard motor. "They came put-putting along with a camera and a dish aimed at the Empire State Building," Hewitt recalls. "I told the captain of the tug to maneuver between them and the Empire State Building so they couldn't transmit past our boat."

In the process of maneuvering, the tug bumped into the rowboat. When Hewitt got back to the office, he found out that Frank Stanton, the president of CBS, had received an irate complaint from the people at NBC, who alleged that Hewitt had tried to sink them in the East River. "I'll never forget what I said then," Hewitt recollects. "I said, 'Crybabies!' "

Quartet of NBC reporters who became almost as well known as politicians they covered at conventions in 1960s includes (from left) John Chancellor, the late Frank McGee, Edwin Newman, Sander Vanocur.



I gave up chocolates. I gave up espresso.

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SATISFY THE CUSTOMER

Plymouth

George Washington was much assured by the eager admirers who thronged to the road his coach traveled.

By Michael Kernan

In 1789, a farmer went to New York to become President

Monarchy was no model for this simple man determined to govern by consent; Washington knew his every move would set tradition

Often in the crowds the general recognized familiar faces of soldiers whom he hadn't seen since the war.

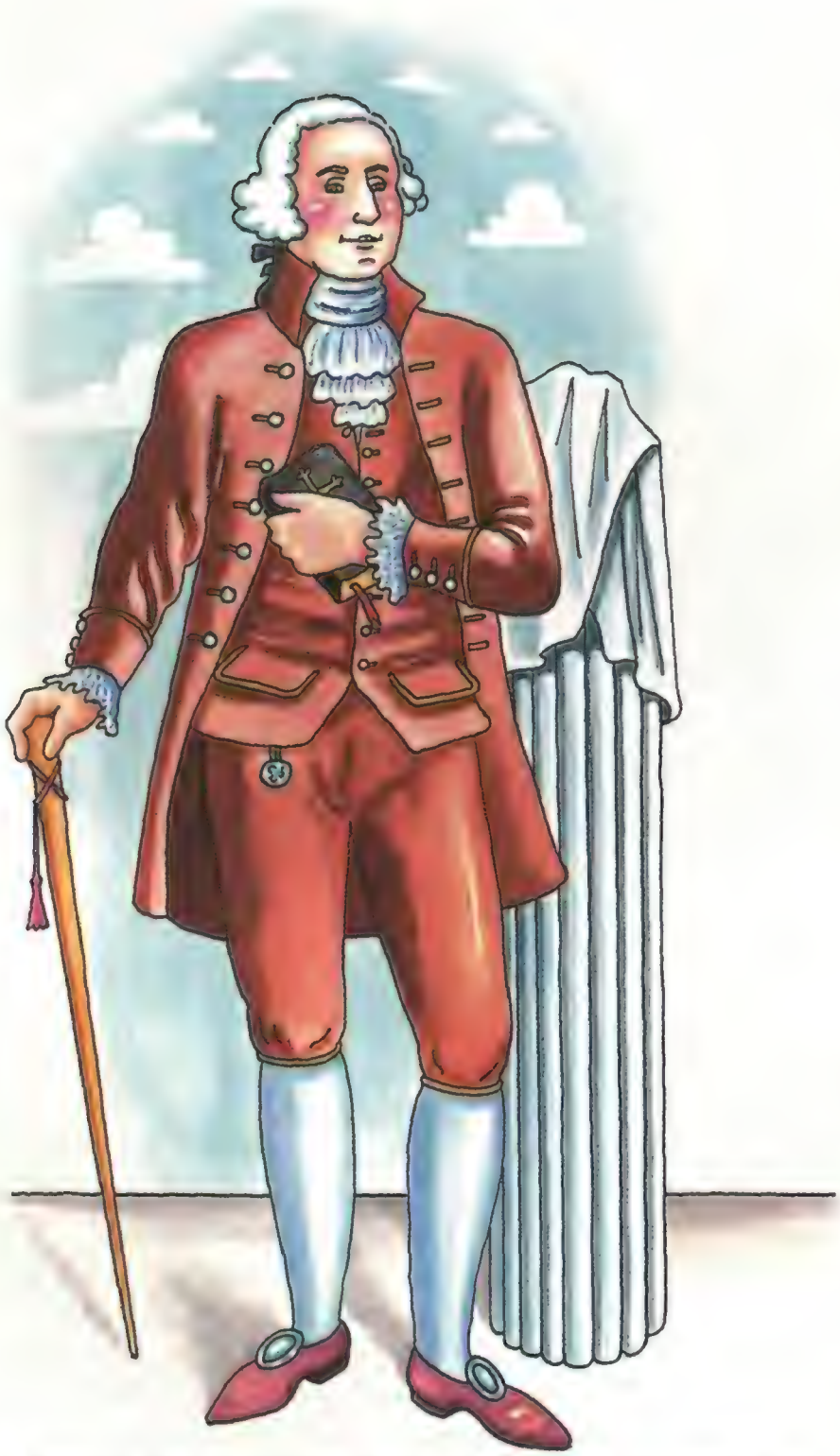
Put yourself under George Washington's wig for a minute. It is April 16 exactly 200 years ago and you have recently been elected the first President of the brand-new United States, and you are riding in your carriage from Mount Vernon to New York City for your Inauguration.

The crowds are unbelievable. All along the way people stand by the road to cheer. Horsemen ride alongside in a continuous guard of honor, raising a storm of dust. At every town, dignitaries are drawn up expecting you to get out and shake their hand. People make speeches, each more grandiloquent than the last. Cannon go off and at night fireworks blossom in the sky. You pass beneath triumphal arches piled with flowers, cross rivers on decorated barges, find yourself caught up in parades. And dinner parties. And even, at one particularly fulsome celebration, "a numerous train of white-robed ladies."

The trip takes eight days. Besides being heartwarming, it is scary; after all, it took a little over a month for a disorganized Congress to achieve a quorum so that the ballots could be opened and counted. And even though you are the very embodiment of national unity, called by many the greatest man in the world, probably

Illustrations by Brenda Losey-Sumpter

When, on a dare, Gouverneur Morris patted the new President's shoulder, he received a withering glare.



For his Inauguration, Washington wore a modest suit of homespun cloth—but its buttons were engraved.

the only man really considered for the single-handed job of national executive—remember, if you hadn't been around, there quite likely would have been a troika or some other arrangement instead—still, the last thing most Americans want right now is another king. They've already had a King George.

So your problem is simply this: How do you act? How are you to be addressed? Can you have private parties for your friends or do you belong to the public day and night? Every move you make will set a precedent. Every casual act could turn into a tradition. "Hail to the Chief" hasn't even been written yet.

It is hard for us today to imagine a time when a Senate committee, charged with inventing an official title for the job, would come up with "His Highness the President of the United States and Protector of the Rights of the Same." Or to believe that John Adams actually sneered, "What will the common people of foreign countries, what will the sailors and soldiers say [when speaking of] 'George Washington, the President of the United States'? They will despise him."

But then, Adams was a special case. Not only was he famously jealous of Washington, he had also spent years in England and France on diplomatic missions, and had grown accustomed to court life and its royal trappings. It was Adams who, as Vice President and consequently President of the Senate, had suggested a resolution praising the first Inaugural address, referring to it as Washington's "most gracious speech."

This last phrase sent the Senate into an uproar, for it was the wording customarily used by the British Parliament in replying to a speech by the king.

William Maclay, the quick-tempered Senator from western Pennsylvania, led the fierce and prolonged opposition to this wording. (Incidentally, Maclay's diary

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is far and away our best record of the doings of those first senatorial sessions, held in private. While some historians see him as a forerunner of Jeffersonian democracy, many agree that his often acrimonious and spirited reporting style tends to distort the record.) About "this whole silly business" of a title committee, he remarked, "our House seems determined on . . . all the fooleries, fopperies, fineries and pomp of Royal etiquette . . . and all this for Mr. Adams."

George Washington himself was, of course, excruciatingly sensitive to any hint of royal ambitions. He was shocked when a pamphlet attacked his beloved Society of the Cincinnati, a fraternal organization of Revolutionary Army officers, because of its hereditary membership rule. Besides its aristocratic nature, the group's critics saw the society as an antirepublican rival to the Congress, a rival that had no trouble attracting from every state a huge attendance at its national conference—something Congress was hard put to do in those times. As national president of the order, Washington did what he could to neutralize it, and though his proposals were eventually shelved, the Society of the Cincinnati never proved to be what you would call a threat to the Republic.

At the same time, Washington could be punctilious about the titles that he felt were his due. During the war the British loved to belittle everything American, beginning with the song "Yankee Doodle." Sir Henry Clinton, newly appointed to command the British Army, sent his enemy a dispatch addressed patronizingly to "Mr. Washington." The general took the envelope from the flag of truce, glanced at the address and drew himself up, saying evenly: "This letter is directed to a planter of the state of Virginia. I shall have it delivered to him after the end of the war; till that time it shall not be opened."

The next message was addressed to "His Excellency General Washington."

A man sharply alert to details, Washington was careful to wear a modest suit of brown cloth (homespun from Hartford, Connecticut) at his Inauguration, but the dandy in him insisted on adding engraved buttons, also made in the USA.

But most of all it seems to have been the sheer force of Washington's Olympian personality, august and remote and evenhanded, that made purple fripperies simply unnecessary. There is a celebrated, though perhaps apocryphal, story about his aloofness. Alexander Hamilton once commented on Washington's extreme reserve—even with his intimate friends—to the vivacious and brilliant statesman Gouverneur Morris. Morris, who counted himself a close friend of Washington's, objected, and so Hamilton challenged him to walk up to Washington at a soiree, pat him on the shoulder and say, "My dear General, how happy I am to see you look so well." If you'll do this, Hamilton reportedly said, I'll throw a dinner party for you and 12 of your friends.

Please don't touch the President

Came the soiree and Morris strode up to the great man while Hamilton looked on, laid a hand on the massive shoulder (they were the same height; in fact, Jean-Antoine Houdon, the French sculptor, used Morris' figure as a model for his full-length sculpture of Washington) and gave his hail-fellow greeting.

Whereupon, as historian James Parton put it in his *Life of Thomas Jefferson*, Washington "fixed his eye on Morris for several minutes with an angry frown, until the latter retreated abashed, and sought refuge in the crowd. The company looked on in silence. At the supper that was provided by Hamilton, Morris said, 'I have won the bet, but dearly paid for it, and nothing could induce me to repeat it.' "

Nobody fooled around with George Washington. If he hadn't been that stiff, that conscious of his role in history, haphazard events might have bent his behavior, and consequently that of his successors down the centuries, into a shape no one would recognize today.

"Few who are not philosophical spectators," Washington wrote, "can realize the difficult and delicate part which a man in my situation had to act. . . . I walk on untrodden ground. There is scarcely any part of my conduct which may not hereafter be drawn into precedent."

Over the years, such details of protocol take on

From dawn to dusk, the tourists, job seekers and well-wishers invaded President Washington's home.

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enormous significance far beyond their literal meaning. The custom of calling a President "Mr. President," for instance: even Robert Kennedy addressed his own brother as "Mr. President" in the Oval Office. And the power of that traditon seems if anything greater in the breach, for was it not the scabrous language picked up by the tapes of Presidential conversation in the same office that finally brought down Richard Nixon?

From President Washington's first day in New York—at 3 Cherry Street, rent $845 a year—his privacy was destroyed. Citizens wandered in and out at will, crowding into the hallways, smiling the conspiratorial smile of invasive tourists, asking for government jobs, checking the furniture for signs of royal luxury or just gaping at the great hero. Washington found the situation impossible, learned that former Presidents of Congress had been "considered in no better light than as a maître d'hôtel"—and took action.

Two days after the Inauguration he announced that he would receive visitors only from 2 to 3 P.M. on Tuesdays and Fridays. He would not return the visits. He would not accept frivolous invitations.

The ever vigilant William Maclay warned him that "to be seen only in public on stated times, like an eastern Lama would be . . . offensive," prompting the President to ask advice of Hamilton, Adams and others. How could he avoid "too free an intercourse and too much familiarity," yet not fall into "an ostentatious show of mimicry of sovereignty?" And would it be all right if he ducked out now and then for a cup of tea with a friend?

Remaining accessible—while staying sane

He also wanted to know (foreshadowing perhaps the whistle-stop campaign and the fireside chat, if not the televised press conference) "whether, during the recess of Congress, it would not be advantageous to the interests of the Union for the President to make a tour of the United States, in order to become better acquainted with their principal Characters and internal Circumstances, as well as to be more accessible to numbers of well-informed persons, who might give him useful information and advices on political subjects."

The solution was a weekly levee for men, Tuesdays from 3 to 4 P.M., and a tea party for men and women presided over by Martha, Friday evenings. The President usually wore a black suit, for his mother had died that year, and his hair powdered with the queue bound up; he carried his cocked hat, its cockade trimmed with black feathers. He wore his coat over his sword, in its white leather scabbard, and sported buckles at knee and shoe. Visitors observed that he was good at remembering names, though he never shook hands, even with old friends, but instead bowed formally.

On Friday evenings, Martha (by his side) hosted tea so people could tell George what was on their mind.

He would go around the circle of guests (beginning on the right) and methodically speak to each. The levee was a duty, not a pleasure. He did unbend somewhat, but not much, at the Thursday dinners for government officials, who were invited by rotation, along with other state and local dignitaries.

Even here in these private contacts with the citizenry, the peculiar character of what it meant to be a so-called American—the word itself made Vermonters and Georgians alike slightly uneasy—was still being defined. This was a people, after all, who had become expert at discovering threats to their individual rights, who were wary of any authority, yet who had grown up in a world of monarchies.

At one early levee, a Presidential aide, a colonel named David Humphreys, decided to assemble the guests in what he called, with a pomposity that reverberates to this very day, the "presence chamber." He then led Washington around to an anteroom, threw open the door and stalked into the chamber ahead of him, roaring in his most impressive basso, "The Pres-i-dent of the U-ni-ted States!"

Washington was appalled. Throughout the levee he scowled and muttered, and when it was over he went

Freelance writer Michael Kernan has contributed stories ranging from fear of falling to treatment of stuttering to auctions at Sotheby's and Christie's.

The weekly event was informal and festive, but it was often criticized for its royal trappings. Once straight for the unfortunate Humphreys. "Well, you have taken me in once," he snapped, "but by God you shall never take me in a second time!"

After that, according to the story, the President was simply revealed to the arriving crowd as he stood in the reception room. Humphreys' love of ceremony and courtly rigmarole was hardly unique, by the way. Not only John Adams but Alexander Hamilton and other Federalists generally favored the idea as giving a certain dignity and panache to the upstart nation. It was the specifics that bothered them.

There was the business of the coach, a superbly decorated six-horse affair in cream and gold, with silver-plated trappings, places for four men in livery and Washington's coat of arms emblazoned on the doors. When someone attacked John Adams for his love of monarchic finery, his observant wife, Abigail, simply pointed to the coach.

Well, it had been given to Martha, actually. That was the official line. George had a rule against accepting expensive presents.

But he did love horses and carriages. When his matched set of six white horses went out they were a glorious sight, their coats covered with shiny whiting, their hoofs blackened and polished, their teeth cleaned, their trademark leopard-skin saddle blankets in place. President or no, Washington never said he would change his spots, either: he was a Virginia squire from

free of his duties as host, Washington spent all of his time with the ladies, finally able to unwind a bit.

first to last. And if his simple but elegant style appeared ostentatious to some, to certain others, especially those who had spent some time in Europe, it seemed frugal if not downright squalid.

Although he would walk the streets like any other citizen, the dinners he gave in the New York house were dinners worthy of the master of Mount Vernon. He would line up his servants in powder and wig, and after waiting five minutes past the dining hour of 4 P.M.—watches and clocks of the time being what they were—would bring his guests, "as many as my table will hold," to the dining room.

His steward, Samuel Fraunces, late the owner of the famous Fraunces Tavern in downtown Manhattan where the general had taken leave of his officers after the war, called the dinners "bountiful and elegant," featuring as they did an unusually plentiful amount of claret and champagne. Washington would sit not at the head, but halfway down one side of the long table. Martha sat at his right, but moved to the seat across from him in mixed company. Usually the President ate one dish only, with a silver pint cup of beer beside him. He would take two glasses of wine—one during the meal and the other afterward, when the women had departed.

Leave it to that irascible spoilsport William Maclay to find something wrong with the Washington dinner: "It was a great dinner, the best of the kind I ever

was at. The room, however, was disagreeably warm. First was soup; fish roasted and boiled; meats, gammon, fowls, etc. This was the dinner. The middle of the table was garnished in the usual tasty way, with small images, flowers (artificial), etc. The dessert was, first apple-pies, puddings, etc., then iced creams, jellies, etc., then water-melons, musk-melons, apples, peaches, nuts. It was the most solemn dinner ever I sat at. Not a health drank; scarce a word said until the cloth was taken away. Then the President, filling a glass of wine, with great formality drank to the health of every individual by name round the table. . . . The President kept a fork in his hand, when the cloth was taken away, I thought for the purpose of picking nuts. He ate no nuts, however, but played with the fork, striking the edge of the table with it. . . ."

But setting precedents went far beyond the niceties of social custom. Washington was always conscious that his every political move would probably shape the form that American democracy was to take for generations. Everyone remembers how he declined a third term, saying that two were enough for any man. They were enough for all the Presidents who followed until Franklin Roosevelt broke the tradition in 1940.

That wasn't all. There was the matter of the Vice President's role. As historian James T. Flexner puts it, "Although the Constitution made John Adams presiding officer of the Senate, there was nothing in the document to keep him from also becoming, in effect, the President's prime minister."

The problem was that Washington frankly didn't like Adams much. The man had been nothing but trouble to him during the war. And Adams wasn't any too delighted to take second place. He was offended by his paltry $5,000-a-year salary, which compared miserably with Washington's $25,000. In his Inaugural speech he just couldn't resist mentioning Washington's "overruling good fortune," and he hesitated to give the new chief executive any advice lest he be blamed if something went wrong.

At first Washington brought Adams into the informal sessions that were later to evolve into Cabinet meetings, but it was James Madison, a close friend, to whom the President turned for suggestions and advice. Since Madison was merely a member of the House, we get a rather charming picture of a homey, small-town sort of government, personalized, you might say, in a way that today's massive hierarchies could never be. Call it cronyism if you must, but somehow the word sounds out of place, not to say hilarious, with a man as stiff-backed as George Washington. In any case, "before the end of the first term," says Flexner, "the Vice Presidency was established in the backwater from which it has never emerged."

The President's relationship with the Senate was another matter to be settled quickly. Washington was a stickler for separation of powers, and he fought off the instinctive urge to influence legislators, though he did recommend that the Congress establish a Bill of Rights, and he expressed an interest in passing various new rules for the militia.

But where was the line to be drawn? Opponents of a single chief executive—and there were many; the matter was one of the last things decided by the Constitutional Convention—were nervous about letting this individual have the power to appoint whomever he wished. They suggested that if the Senate was to have the right to approve or reject the executive's major appointments, as was specified in the Constitution, it

Only once did an aide make the mistake of announcing the President with pomp that smacked of aristocracy.

should logically have the right to approve or reject his dismissals too.

The backers of a strong executive retorted that this meant the Senate could force a President to keep a Cabinet member who opposed his policies. In other words, the Senate majority would in effect control who stayed in the Cabinet and who didn't.

It came to a vote. The House was against interference by the Senate, thanks in part to the lobbying of Madison, and the Senate voted a tie, which was broken by Adams, who was, after all, a member of the executive branch even if he didn't exactly love Washington.

Surely a less popular and influential President, says biographer Flexner, would have lost that one. If he had, we would be living today in a spectacularly different America, with a dominant legislative body and a figurehead executive.

Washington also guarded jealously his constitutional right to conduct foreign policy. The Constitution said he had to get the Senate's "advice and consent" on foreign treaties, however, so it was clear that some sort of connection had to be established with that body.

Early on, the President drafted instructions for negotiating a treaty with the Creek Indians and took it to the Senate chamber himself to get advice and consent. Senator Maclay saw the whole thing and didn't like it: "The President was introduced and took our President's [Adams'] Chair," he wrote, irritation at this displacement vibrating in the very words. "Carriages were driving past, and such a noise. I could tell it was something about Indians, but was not master of one sentence of it. Signs were made to the doorkeeper to shut down the sashes." Senator Robert Morris said he hadn't heard the words either, so the paper was read a second time. "It was no sooner read than our President immediately read the first head over and put the question: Do you advise and consent etc. There was a dead pause. Mr. Morris whispered me, we will see who will venture to break silence first."

At last Maclay himself rose and called for a reading of all the documents concerned with the treaty. "I cast an eye at the President of the United States. I saw he wore an aspect of stern displeasure."

More discussion, more confusion. Finally Morris moved that the treaty documents be turned over to a committee for study. Maclay backed him up, speaking, he reports, "in a low tone of voice. Peevishness, itself I think, could not have taken offence at anything I said. As I sat down the President of the U.S. started up in a violent fret. 'This defeats every purpose of my coming here,' were the first words that he said."

Controlling himself with effort, Washington agreed to a delay while the Senate studied the matter, and then left with a "discontented air." Maclay adds, "Had it been any other man, than the man whom I wish to regard as the first character in the world, I would have said 'with sullen dignity.' "

The next week Washington returned in good spirits, sat through hours of debate and in the end got what he had come for, with minor changes. But as he left the Senate he was heard to mutter he would "be damned if he ever went there again!"

Never from that day did Washington go to the Senate chamber, hat over breast, to await its advice and consent. And, just as a child's hand casts a vast shadow on a distant screen, that exasperated little confrontation has been promoted to the status of historic event. Never since then has any President gone to the Senate chamber to seek its advice or to take part in its debates.

Leaving the Senate, the fed-up President was heard to mutter he'd "be damned if he ever went there again!"

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By Jon Krakauer

Gidget has grown up, but surfing is still a 'totally happening' sport

"Cowabunga!" is out and "Awesome!" is in. The boards are smaller, the crowds are larger. Otherwise, not much has changed

Actors aim for Hollywood, politicians fantasize about the White House, ambitious musicians fix their sights on Carnegie Hall. When surfers' heads fill with dreams of glory, the setting is most often the Hawaiian Islands—specifically, a 12-mile stretch of rocky coastline on the northwest side of Oahu. In the summer, the water off the North Shore, as this end of Oahu is known, is usually as flat as a parking lot. But come November, intense low-pressure systems start spinning along the North Pacific storm track, and for the next four months a procession of cyclones churns the sea off Alaska's Aleutian Islands, generating huge ground swells that roll down toward Hawaii across 1,500 miles of open water. Surfers call these swells "Aleutian juice." Standing by itself in the middle of the Pacific, the Hawaiian archipelago lacks a surrounding continental shelf to check the swells' momentum. When the Aleutian juggernauts collide head-on with the lava and limestone of the North Shore, the upshot is extraordinary. Every winter, the best surfers in the world come to Oahu to test themselves against these gigantic waves.

Ken Bradshaw, an energetic, big-boned Texan, arrived on the North Shore for a taste of Aleutian juice in 1972 and became so ardently preoccupied with the challenges it presents that he's still there. Bradshaw has supported himself for most of those years primarily through the manufacture and sale of handmade surfboards. It isn't a career that's ever likely to make him rich, but it does enable the perennially suntanned 36-year-old to drop work and take to the waves whenever the surf's up. *Real* surfers, as folks on the North Shore like to brag, don't have *real* jobs.

When I talked to him recently at his shack on the North Shore, Bradshaw told me he is "just as stoked as when I first got here, especially about riding the bay." By "the bay" he means Waimea Bay, a small cove midway up the North Shore where, thanks to a quirk of undersea topography, some of the biggest ridable surf on the planet rumbles ashore. Waimea owes its reputation as the Mount Everest of surfing to a shelf of fossilized coral 125 yards offshore, immediately beyond which the bottom drops off into a two-mile-deep abyss. When jumbo swells surge in from that deep water at 30 miles per hour and encounter the coral shelf, the sudden rise in the ocean floor lifts each wave into a steep peak, then knocks the legs out from under it, causing the wave crest to pitch forward in a thundering curl of white water. When I beheld 25-foot-high waves collapsing across the mouth of the bay, it was such an arresting sight I couldn't look away. The surf had the

Near Waimea Bay on Oahu's North Shore, a Hawaiian surfer stays ahead of a wave as he "shoots the tube."

A petroglyph on the island of Hawaii suggests that people were riding the waves there two centuries ago.

Ken Bradshaw, veteran surfer and board manufacturer, heads for trough of a 25-foot breaker at Waimea.

same terrible, utterly mesmerizing power you see in newsreels of tornadoes or nuclear detonations. Because the reef is relatively deep, each teetering green wall pauses for a beat or two before toppling over—which is just long enough for a surfer with flawless technique and a dearth of common sense to launch his board from the crest, jump into a low crouch and accelerate down the face.

The entire ride lasts less than 15 seconds, but it's rich in adrenaline. "In those 15 seconds," explains Bradshaw (left), one of the world's premier big-wave surfers, "you travel probably 300 yards. You're going so fast that time seems to slow down, like it does when you're in a car wreck, and your senses are so totally tuned-in that every detail of the ride is etched into your brain." Not all those etchings are likely to be pretty. From time to time even the most talented surfers are separated from their boards. The vocabulary of surfing is endowed with a multitude of terms for denoting the act—"wipe out," "take gas," "get stuffed," "get mowed," "eat it"—but however they phrase it, surfers agree that Waimea is a particularly poor place to do it.

Bradshaw compares "eating it" at the top of a big Waimea wave to falling off a cliff. "Except that when

In 19th-century engraving, Hawaiian "surf swimmers" show there are more ways than one to ride a big curl.

Duke Kahanamoku, movie star, Olympic medalist and surfing booster, displayed 16-foot board at Waikiki.

you fall off a cliff," he says, "you don't get hammered by thousands of tons of water after you land. I've been blasted right out of my wet suit, and spun so bad by the turbulence I thought my arms were going to come off." He has personally seen two people lose their lives. Whenever the waves reach 15 feet, a "high-surf advisory" is issued for the North Shore, a rescue helicopter is kept on standby at the local fire station and most surfers are happy to stay on the beach. At 25 feet, the exodus from the water is nearly complete and only a handful of big-wave virtuosos remain in the surf. Although Bradshaw and a few others have successfully ridden 35-foot waves, no one has yet ridden surf appreciably bigger than that at Waimea or anywhere else. Such waves seldom appear, and besides it would probably be impossible to catch one.

Every once in a while, though, you do get a freak. On January 18, 1985, several hundred spectators at Waimea witnessed a rogue wave roll in that was estimated to stand 60 feet from base to crest, and some of those present insist that the behemoth was "makable"—that it could have been surfed. Not surprisingly, the four surfers who happened to be in the water at the time elected not to try. Upon seeing the breaker rear up on the horizon like a six-story building, they abandoned their $500 surfboards, dived for the bottom and hung on for dear life. They emerged through the layer of foam that blanketed the bay, badly rattled but still in the company of the living.

To give this story the ring of truth, Seattle writer Jon Krakauer had to spend a lot of time in the surf, where he learned "a mean bottom turn."

Though commonly dismissed as a modern pastime for feckless adolescents, surfing is actually one of the world's most venerable sports. It came to Hawaii with the Polynesians, who discovered and settled the archipelago in the eighth century A.D. Petroglyphs depicting feats of early surfers have been found at several island sites, including the North Shore of Oahu. By the time the great British explorer Capt. James Cook chanced upon the Hawaiian chain in 1778, the resident surfers could—to use the highest plaudit of their 1980s successors—"totally shred, dude." Cook's lieutenant, James King, was so impressed that he went on at length about "these difficult and dangerous maneuvres" in a published account of Cook's voyages.

Surfing was a huge part of Hawaiian life in those

Beach Boys, here circa 1962, once called themselves the Pendletones, after shirt then popular with surfers.

days. Virtually everybody did it, regardless of age, gender or station in society. Both Kamehameha the Great and Queen Kaahumanu—Hawaii's most powerful rulers—rode the waves with legendary panache. Boards, painstakingly carved from mahoganylike koa trees or from balsalike wiliwili wood, were treasured possessions. A few tourists, including Mark Twain, joined in. Describing his experience in *Roughing It*, published in 1866, Twain admitted that he "made a failure of it. I got the board placed right, and at the right moment, too; but missed the connection myself.—The board struck the shore in three quarters of a second, without any cargo, and I struck the bottom about the same time, with a couple barrels of water in me. None but natives ever master the art of surf-bathing thoroughly."

Most missionaries in Hawaii viewed surfing as a shamefully hedonistic pursuit that encouraged gambling, sex and a host of other mortal sins. Their campaign to stamp it out began about the same time as the decimation of the Hawaiian people by measles, syphilis and additional Western plagues. The number of Polynesians on the islands declined from an estimated 300,000 at the time of Captain Cook's first landing to fewer than 40,000 a century later. Writing about Hawaii in 1892, anthropologist Nathaniel Emerson lamented, "There are those living . . . who remember the time when almost the entire population of a village would at certain hours resort to the sea-side to indulge in [surf-riding]. . . . But this too has felt the touch of civilization, and to-day it is hard to find a surfboard outside of our museums and private collections."

The sport was rescued from oblivion by the swashbuckling novelist Jack London. In 1907, he sojourned at Oahu's Waikiki Beach, on the opposite side of the island from the North Shore. The handful of surfers who frequented Waikiki in those days couldn't hold a candle to their brilliant forebears, but London was sufficiently impressed to wax rhapsodic in a widely read magazine article and later in a popular book, *The Cruise of the Snark*. Thanks in part to that publicity, surfing began to bounce back.

One of the people who taught London to surf was a 23-year-old Waikiki resident of Irish-Hawaiian descent named George Freeth. The writer extolled Freeth's surfing prowess in print, describing him as a "young god bronzed with sunburn," standing "calm and superb, poised on the giddy summit [of a wave], his feet buried in the churning foam, the salt smoke rising to his knees, and all the rest of him in the free air and flashing sunlight, and he is flying through the air, flying forward, flying fast as the surge on which he stands."

In 1907, probably as a direct consequence of London's turgid prose, Freeth was invited to Redondo Beach, California, just outside Los Angeles, to give a series of highly publicized exhibitions. The trip was underwritten by a wealthy developer named Henry Huntington, who hoped that the novelty of a man "who can walk on water" would induce city dwellers to travel to the beach on his newly opened Redondo-Los Angeles railway line. Freeth did more than fill Huntington's trains with paying customers; he unwittingly gave birth to a subculture that would come to symbolize all things Californian and eventually influence the speech and dress of the entire nation.

The first apostle of surfing

Upon leaving Huntington's payroll, Freeth stayed on in California as a free-lance apostle of surfing, lugging his 200-pound redwood board up and down the coast and earning his keep along the way as the state's first official lifeguard. After he was fatally stricken in the influenza epidemic of 1918-19 (SMITHSONIAN, January 1989), a bust honoring his role in California history was erected at Redondo Beach. Beneath the likeness—which still stands alongside the Redondo boardwalk—an inscription pays him high tribute: "George Freeth. First Surfer in the United States."

If Freeth planted the seeds of the sport in America,

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it was left to another Hawaiian émigré, Duke Kahanamoku, to cultivate them. The son of a Honolulu policeman, he was an unusually gifted athlete who excelled at both surfing and swimming. In 1912 he was selected to represent the United States at the Stockholm Olympics, where he won a gold medal in the 100-meter freestyle. "The Duke" became the toast of the nation and was feted from coast to coast. In the course of his victory tour, the gregarious 22-year-old began demonstrating the "ancient Hawaiian art of surf-riding," inspiring hundreds of adoring fans from New Jersey to California to give it a whirl.

Capitalizing on his good looks and fame, the Duke spent much of the next 20 years in Hollywood, hobnobbing with the Beautiful People and playing bit parts in forgettable movies, the pinnacle of his acting career being a role opposite John Wayne in *The Wake of the Red Witch.* All the while he continued to surf prodigiously and teach others. When a yacht capsized in rough seas off Newport Beach on June 14, 1925, Kahanamoku—who happened to be picnicking on shore at the time—repeatedly paddled his board out through the deadly surf and single-handedly saved the lives of eight people.

As a teenager, Kathy Kohner shared hammock with Sandra Dee (top, at right), who played her in the 1959 surfer movie *Gidget.* On the beach at Malibu today, Kathy Kohner Zuckerman, mother of two, rides again.

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Apparent wipeout is actually a dismount; seen from behind wave, surfer flies over the crest before it breaks.

The Duke's standing as a bona fide American hero lent surfing tremendous cachet. By the late '40s an estimated 5,000 people had taken it up in California, and the Golden State was fast on its way to replacing Hawaii as the center of the surfing universe. The sport got a big boost in those postwar years from an eccentric Californian named Bob Simmons, who revolutionized surfboard design by experimenting with various combinations of Styrofoam, plywood, balsa and fiberglass to create boards that weighed far less than the old wooden ones. But it was their sophisticated shape that really set Simmons' creations apart—the boards' sleek hydrodynamic lines enabled even mediocre surfers to "shoot the curl" with a measure of élan.

By the '50s, surfing had become more than a sport; it had evolved into a way of life. To be a surfer was to belong to a vibrant, close-knit society possessing its own values and mores, its own manner of dress, its own language. One's surfboard was one's "stick." When something was good it was "bitchen"; when tough, "gnarly." Inept beginners were "hodads." To ride the very nose of the board with all ten toes curled over the leading edge was to "hang ten"—a display of bravado guaranteed to elicit approving cries of "Cowabunga!" from one's cohorts on the beach.

Many of the surf culture's hallmark fashions were born of necessity. The distinctive trunks surfers wore, for example, were cut loose for freedom of movement, and cut long to protect the wearer's thighs from chafing while he sat astride his board waiting for waves. Likewise, the wood-paneled station wagon—the venerated "woodie"—was the preferred mode of transport because it was roomy enough to live in and a surfboard would fit in the back.

Despite the growing vitality of the surfing community, the sport itself was still regarded by the masses as an obscure, slightly oddball activity on the order of logrolling or alligator wrestling. Then, in 1959, surfing was thrust abruptly to the fore of public awareness. Overnight, an arcane seaside pastime exploded into a full-blown national craze. The person responsible was a diminutive teenager named Kathy Kohner, better known as Gidget.

The 15-year-old Kohner had spent the summer of 1956 hanging out at Malibu, a beach 12 miles up Highway 1 from Santa Monica. By Hawaiian standards, the surf there is small—typically two to five feet, almost never higher than eight feet—but thanks to the configuration of a shallow reef just offshore, the waves are exquisitely shaped. On a good south swell, perfectly formed rollers peel around Malibu Point, providing rides of 300 yards or more—three or four times as long as the longest rides possible at most other surf breaks. As a consequence, some of the hottest surfers in California lived on the beach at Malibu every summer.

Kohner idolized the dashing young surfers. Some of them, in turn, were sufficiently charmed by the pixie-like Kohner to accept her into their inner circle and teach her how to surf. At the time, every surfer worth his or her salt had a nickname. Kohner's soon-to-be-famous moniker was allegedly bestowed upon her by Terry (the Kahuna) Tracy, the elder statesman of Malibu society (the Hawaiian word *kahuna* means "sorcerer"). When Kohner, who was only five feet tall, first showed up on the beach, Tracy remarked to his friends, "It's a midget, a girl midget! It's a goddamn gidget!" Not only did the nickname stick; three years later the Kahuna would see himself played by Cliff Robertson on the silver screen.

Gidget, the Jaw and the Mongoose

Kohner's father, it turned out, was Frederick Kohner, a writer. After hearing Gidget come home from the beach every day with tales of the outlandish goings-on at Malibu, Kohner *père* decided to write a novel based loosely on the relationship between his daughter and her wacky friends, most of whom answered to names like the Enforcer, the Jaw and the Mongoose. The book became a best-seller, Columbia Pictures bought the rights to it and in 1959 the movie *Gidget* was released on an unsuspecting world. Starring Sandra Dee as Gidget and James Darren as her boyfriend, Moondoggie, the film was never in danger of winning any Academy Awards, but the corny portrayal of the Malibu surfers' bohemian existence captured the pub-

Father's Day past.

Greeting card, 1934. Used with permission.

Father's Day present.

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lic imagination. *Gidget* did so well at the box office, in fact, that it touched off an avalanche of sequels and imitators like *Gidget Goes Hawaiian, Beach Blanket Bingo* and *How to Stuff a Wild Bikini.*

Surf madness swept the country. In 1962 more than 25,000 boards were sold in Southern California alone. Chevrolet came out with a sporty new coupe and christened it "Malibu." Kids in Kansas and Indiana who'd never laid eyes on the ocean began to insinuate bits of surf lingo like "stoked" into everyday conversation and wear boldly striped "surfer shirts" imprinted with the logos of Hobie Alter, Dale Velzy and other leading California board manufacturers. It was all but impossible in the summer of 1963 to turn on a radio in the United States without hearing: 1) five young men who called themselves the Beach Boys crooning lines like, "And when you catch a wave, you'll be sitting on top of the world" or 2) a similar-sounding California duo, Jan and Dean, warbling about a paradise called "Surf City," where there were "two girls for every boy, oooh-oooh-woooh-oooh."

Not surprisingly, most surfers who had been involved in the sport in the pre-Gidget days were less than happy about this crass commercialization and the resulting population explosion in the waves. One of the unhappy people was Mickey (Da Cat) Dora, a complex, larger-than-life figure who was the most celebrated surfer of the era. In the words of Corky Carroll, the surfing champion turned Lite-beer pitchman, "It was Dora's graceful surfing style that everyone copied in the water, his charisma that everyone tried to copy on the beach. He kind of defined what being a surfer was all about." Even though Dora actively sought—and received—high-paying employment as a double in a number of the early beach movies, afterward he complained bitterly about the "controlling interests who have turned our once-great, individualistic sport into a mushy, soggy cartoon."

During the 1965 Malibu Invitational—a prestigious, nationally televised surfing contest—Dora found a way to express his displeasure. As the event's final round was drawing to a close, in the midst of executing a difficult nose-riding maneuver on the biggest wave of the afternoon, he lowered his trunks and mooned the thousands of spectators lining the shore, not to mention a television audience in the millions. A short time later, Dora left California without leaving a forwarding address, and not even his closest friends could say what became of him.

Last summer, 32 years after Kathy Kohner's first surfing lesson, I paid a visit to Malibu and found that there have been some changes since the reign of Mickey Dora. Nobody drives to the beach in a woodie anymore, for one thing. For another, etymological relics like "Cowabunga!" and "hodad" have been replaced by essential phrases like "Awesome!" and "clueless dweeb" (i.e., nerd). Instead of grooving to the innocent harmonies of the Beach Boys or Jan and Dean, most Malibu denizens now draw their inspiration from the apocalyptic wailing of rock bands with names like Meat Puppets, Surf Punks, Megadeath, and Bark in the Dark.

"Swallowtail" board from '70s sticks out of a '46 Mercury "woodie" station wagon. Such cars became surfers' vehicle of choice. Often termite infested, they were very cheap—and roomy enough to live in. Collectors have now bid them beyond reach of *real* (i.e., unemployed) surfers.

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Bust honoring George Freeth as the "first surfer" in America stands near water's edge at Redondo Beach.

Board design has kept pace with the times, too. After an Australian named Nat Young won the 1966 world surfing championships on a relatively short, light board that permitted a flashier, more frenetic surfing style, surfboards started becoming smaller and smaller. For riding monster waves at places like Waimea Bay—where speed and stability are more important in a board than maneuverability—specialized, ten-foot craft known as "elephant guns" or "rhino chasers" continue to be de rigueur, but elsewhere the typical board has shrunk to a length of just over six feet. Constructed from polyurethane foam encased in a thin skin of laminated fiberglass, these modern "thrusters" sport three small stabilizing fins at the tail and weigh a scant six or seven pounds.

If a lot has changed, the waves still break off Malibu Point with the same flawless shape that amazed and delighted surfers there back in 1956. I counted more than 150 people in the water, shredding the concave green walls with a nervous, aggressive intensity. At least twice that many more surfers were sitting on the beach, waiting impatiently for the throngs in the waves to thin. Malibu, as a 15-year-old, peroxide-blond surfer named Chaz Pritchett assured me, was still a "totally happening spot, shredwise."

In the '50s, most surfers would have considered Malibu unreasonably crowded with 30 people in the water and would have promptly headed elsewhere. Not so in the '80s. Nobody knows exactly how many surfers there are now, but the number is in the millions; sales of surf-related products in the United States currently amount to some $3 billion yearly. Severely overpopulated waves have become a fact of life not only in California but throughout most of the rest of the surfing world as well, from Hawaii to Florida, Australia to Peru, France to Puerto Rico.

The sport has grown so popular that now there are even museums devoted exclusively to the display of surfing artifacts. The best known of these opened in 1986 and occupies the ground floor of a handsome brick lighthouse in Santa Cruz. Among its treasures are vintage redwood boards, classic surfing posters and pathetically ineffective early wet suits. The museum also has on display one thoroughly modern surfboard with a 16-inch-wide bite mark on it. On August 15, 1987, forty miles north of town, surfer Craig Rogers was sitting astride the board waiting for a wave when a great white shark rose from the depths and chomped into it, just in front of his leg. If Rogers had been lying down instead of sitting up, he says, "I wouldn't be here to talk about it."

Sharks, however, didn't seem to be a concern at Malibu, judging by the size of the mob in the waves. When I asked Chaz if the crowd ever included Gidget herself anymore, he let out a hoot and blurted, "Gidget? Yeah, sure. Like, whenever the point really cranks, Gidget, Elvis and Annette Funicello all show up together and surf *way* rad. Get real, dude."

Chaz walked away shaking his head, but I later learned that Kathy Zuckerman, née Kohner, actually does live just a few miles down Highway 1 in the town of Pacific Palisades. Now 48, Gidget has two children, works as a restaurant hostess in Santa Monica and no longer surfs at Malibu or anywhere else. The Kahuna, Terry Tracy, is employed as a security guard and doesn't surf anymore, either. Though Mickey Dora hasn't been seen around Malibu for the better part of two decades, and his whereabouts continues to be a mystery to all but a few friends, the force of his personality is still strongly felt. On a wall behind the Malibu parking lot, not far from where Da Cat and the Kahuna held court three decades ago, I saw a freshly scrawled graffito that proclaimed in bold black letters, DORA. And nearby, lest anybody forget, someone else had painted, DA CAT IS KING.

At Malibu, youth in wet suit carries board past grafitto proclaiming name of celebrated surfer from the '60s.

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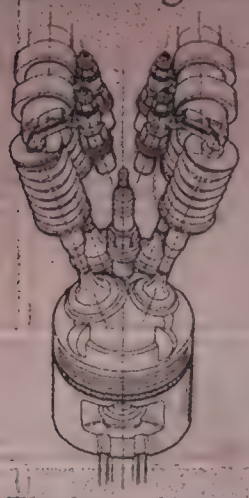

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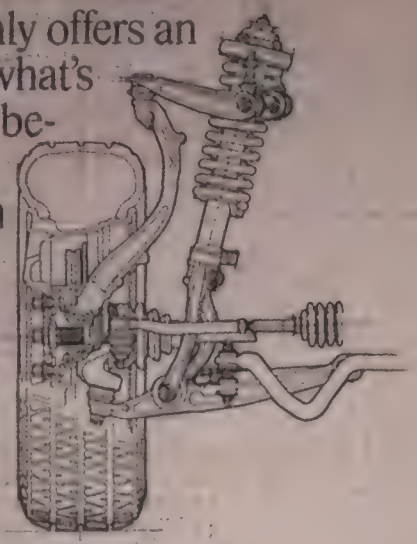

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By Dan Hofstadter

In one great swoop, country bumpkin to Royal Academy

The astonishing path of Benjamin West, from the American backwoods of the 18th century to the glittering halls of England's aristocracy

A few years before his death in London at the age of 81, Benjamin West, the first American painter to rise to international prominence, disclosed how he had got his start as an artist. It had all begun, he remembered, in the 1740s, when he was only a barefoot boy roaming the woods and meadows of Chester County, Pennsylvania, then a rude, half-savage place. He had fallen in one day with a "party of Indians" who taught him how to make the red and yellow paints they used for their decorations, and he at once applied them to drawings of his own. Soon afterward his mother gave him indigo dye, so that he now possessed the three primary colors, and from the tail of his father's cat, Grimalkin, he culled enough hairs to assemble the first of his life's many brushes.

This anecdote has the ring of untruth, yet it has constantly replayed in the mind of every person who has ever studied the work of Benjamin West. It says a lot about the man himself, and it says a lot, too, about the art of painting—about painting's affinity for the wilderness, for frontiers both real and metaphorical. The story is doubtless only an example of what we would now call image building, but West's image, once built, would stand.

In the field of biography, the fancifully embellished lives of famous artists have a long and distinguished pedigree, stretching back to Giorgio Vasari and Benvenuto Cellini. Their brand of hyperbole delighted the Romantics, and in 1816 a Scotsman named John Galt published the first volume of a highly colored and

National Gallery of Canada, Ottawa

Unveiled at London's Royal Academy in 1771, *The Death of General Wolfe* was soon famous worldwide.

Unprecedented in a heroic work, the subjects wear "modern garb of war," not classical togas and armor.

thoroughly unreliable work called *The Life, Studies, and Works of Benjamin West, Esq.* At that time West was already very old and rather unwell—he would die before Galt's second volume was published, in 1820—and he had lost favor with the bigwigs of the London art crowd; yet he was, all the same, a celebrity.

A backwoods bumpkin with no education to speak of, West had arrived in London in 1763, at the age of 25, to immediately win fame as a painter. He excelled at most of the traditional genres of his art and helped to invent a few himself. At the same time he educated a whole generation of young artists, raised a family, entertained his friends and won secondary fame as an athlete, for he skated brilliantly. He was fervently admired and just as fervently pooh-poohed, but whatever one thought of him one could not deny that his life had the flavor of allegory. All that he had done and all that he had painted suggested some lesson for the wide world, and this fact was not lost on the enterprising Mr. Galt. Galt obtained access to West's papers, took copious notes from the old gentleman's oral narration of his life, and then sat down and wrote his two-volume blockbuster. It was a sort of portrait of the artist in the character of a hero.

West's own half-truths probably tell more about him than a straight story would. They reveal how he wanted people to look back at his life—his hopes, as it were, for the past—and they also explain why he followed the course that he did. In rural Pennsylvania and in Philadelphia, West had taught himself to paint portraits, and then, at the age of 22, had set sail for Italy aboard the *Betty Sally*, which was carrying a cargo of sugar from Philadelphia to Livorno. In Rome he met Anton Raphael Mengs, the most influential neoclassical painter at work in that city, and he copied some Italian masters. Years later he would tell the story to the pupils of the Royal Academy school of

Yale University Art Gallery

Agrippina Landing at Brundisium with the Ashes of Germanicus was ordered by the Archbishop of York.

Detroit Institute of Arts

In 1796, West painted *Death on the Pale Horse*, which shows the biblical Four Horsemen of the Apocalypse.

how he had gone to the Vatican with a group of art cognoscenti who wanted to see "how a native of America who could have no opportunity of contemplating the fine remains of antiquity would be affected by a view of the most perfect figure that Sculpture had produced"—the *Apollo Belvedere*. West took one look at the classic statue and, if you credit his account, cried out, "My God, how like it is to a young Mohawk warrior!" This comparison may sound naive today, but really it was superb self-promotion, as West surely realized when he remembered it, or made it up, for the benefit of his Royal Academy audience. For if the *Apollo Belvedere* were really so like a Mohawk warrior, and if ideal beauty were really so superbly embodied in the "noble savages" of the American Colonies, then who could be more qualified to limn arcadian perfection than the one painter in Europe who had seen Indian braves?

In London, a colonial among cosmopolitans

After about three years of study in Italy, West moved to London. There he was a colonial among cosmopolitans, an autodidact among the highly schooled, a derisory speller among Greek and Latin scholars, and a child of Quakers among Anglican gentry. Within 12 years he would also discover that his deepest sympathies were excited by those Americans who were defying King George III, the very monarch who was largely responsible for his growing success. His social position might well have seemed untenable, yet his talent, his infallible sense of vogue, his friendly manner and his curious facility at transmuting personal liabilities into enviable quirks of style enabled him to rise to the top of his profession in a few short years.

When West left for Italy he was already engaged to Elizabeth Shewell of Philadelphia, and in 1764 he sent for her and they were married in London at St. Martin-in-the-Fields. The couple spent the rest of their lives in the British capital, where they also reared two sons. In 1768, West helped found the Royal Academy of Arts, of which, some 24 years later, he would become president; in 1772, he was appointed Historical Painter to the King; and, in 1791, he was made Surveyor of the King's Pictures. It was from his position as an official painter of history that West derived his primary importance, and most of us, sometime in our school career, have seen reproductions of those two old chestnuts *The Death of General Wolfe* (1770) and *Penn's Treaty with the Indians* (1771), both of which reverberate with patriotic echoes, while failing to wholly please the esthetic sense.

We tend to see West now as a wearisome, high-minded painter, duly sequestered in the respectable past of both Britain and the United States, and the

Baltimore Museum of Art

West's elegant and assured self-portrait shows him in his 30s, already an artist to be reckoned with.

truth is that most of his more than 400 extant pictures are not particularly interesting. Within this vast lifework, however, there are 30 or so pieces of first-rate painting, many of which will appear this summer at a show mounted by the Baltimore Museum of Art. Titled "Benjamin West: American Painter at the English Court," this selection reveals that West's artistic temperament was of a curious but by no means rare order: he was the sort of painter who has to produce a lot of mediocre things in order to come up with one gem. Long overdue for a sympathetic reevaluation, West's work requires a smallish, tight show, and that is what he has received at the Baltimore Museum. The exhibition opens June 4 and runs through August 20.

Benjamin West was one of those men who, because they have succeeded early, come to believe that a personal providence guides their steps; he had a fine opinion of himself and cut a rather dashing figure. We see him in a self-portrait executed around the end of his first decade in London (above). Here West is about 35, and wears a beautiful coat of cool gray, verging on robin's-egg blue. His extravagantly wide-brimmed beaver hat is cocked at a rakish angle, Rubens-style, and one index finger is hooked caressingly between his cheek and his shirt collar, which appears to be of silk. He holds his face at a three-quarter angle, so that only one eye is visible, and this eye gazes at the viewer with an inquiring expression. The set of the mouth is distinctly self-satisfied—perhaps even a bit bumptious—and one hand displays a tablet scrawled with figures adapted from West's history painting *The Death of General Wolfe*. The contemporary viewer was clearly not to forget the splash that West had recently made with this picture, nor the fact that it represents an event—the Battle of Quebec—that had taken place in the British colonies.

Tug-of-war between the tame and the wild

In the period between his arrival in London, in 1763, and the outbreak of the American Revolution, in 1775, West made his mark with a type of art that was then rapidly gaining ground in England, the history painting, yet nothing he did says more about him as a cultural figure than his *Portrait of Colonel Guy Johnson*, circa 1770 (p. 135). This canvas (the identity of the officer is doubted by West's foremost scholar, Allen Staley, and the portrait is not on display in the Baltimore exhibition, but remains at home in the National Gallery of Art in Washington) shows an American who was Superintendent of Indian Affairs in New York, together with a Mohawk brave who points to a peaceful Indian village in the background. Much of the obsessive beauty of the composition comes from the fact that the Mohawk's pose, gesture and outline subtly echo those of the American officer, as if he were the man's shadow or double. The Indian strikes an attitude reminiscent of classical sculpture, while the white man wears beaded Indian garments interspersed with his European articles of dress. A strange mutual mimicry seems to be taking place, reminding us of how often the artists and writers of the British empire admired and even envied the cultures of nonwhite peoples (one recalls West's contemporary, Mungo Park, wandering about West Africa in African dress). All the same, there's a prophetic melancholy in the shadow that falls across the Indian's face and seems almost to dematerialize him—to turn him into a ghost. This extraordinary double portrait unites two of West's principal strengths: his sense (very rare in the history of art) that painting may function as a form of prophecy, and his fascination with the eternal tug-of-war between the tame and the wild.

West's boyhood story of being furnished the materials of painting by a party of Indians, his mother and a cat called Grimalkin is really a New World reprise of something one finds in classical mythology: the account of the marvels that attend the birth of the hero.

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Yale Center for British Art

The West Family, about 1772, records a visit from his father, at right, seated next to West's half-brother. Artist painted himself at top right in curled wig and elegant dress, in contrast to the sober Quakers.

In West's tale, the donors themselves are quaintly emblematic, representing a mix of the domestic and the savage, and this mix cleverly mirrors something in his own sensibility and in the nature of his métier. Like all painters, West was drawn to the idea that a picture could be achieved through discipline and purification—through sketches, studies and reworkings—until the image existed as a vision in his mind and could theoretically be produced any number of times. Yet he also felt (again, like all painters) a contrary pull toward the opposite way of proceeding, in which the artist throws himself directly into his work with little to steady him but his faith in a picture's power to suggest its own eventual resolution.

Of course, these two ways of working are really only mental constructs (every painter combines them to his own satisfaction), but what made West so remarkable was his uncanny ability to knock out, with equal dedication, the coolest, most controlled paintings and the hottest, most spontaneous ones. He was, as we would say today, all over the map. He made paintings from life and paintings from imagination, marmoreally smooth tableaus and brushy extravaganzas, and to cap it all off he could mix these modes into all sorts of permutations, and usually with the same easy enjoyment. Like most artists, he went through periods in which he consistently emphasized one sort of "look," yet he was also perfectly capable of doubling back on himself and picking up where he had left off years earlier. Something in this progression is reminiscent of a feral creature—say, a half-tamed dog—who will stick to your side for awhile, then cut loose into the wild, and then turn up again when you least expect him. Though it would be vulgar to try to make West's entire

Dan Hofstadter, artist and writer on art, lives in Philadelphia. He wrote about Victor Hugo and the musical Les Misérables *in* SMITHSONIAN, *April 1987.*

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Nelson-Atkins Museum of Art

Droll *Mr. and Mrs. John Custance* has newlyweds accompanied by Hymen, Greek god of marriage. Custance was a Norfolk squire and his bride was the daughter of another gentleman farmer. Here, in a playful manner, West uses classical detail.

achievement fit into the theme of the tame versus the wild, this polarity persistently recurs.

Perhaps West's most successful venture in the cool, neoclassical mode was his *Agrippina Landing at Brundisium with the Ashes of Germanicus* (pp. 124-25), done in 1768. It was this image that established West as a history painter and brought him to the attention of George III. Painting of this type was supposed to inculcate virtue, an idea that is foreign to us today. But actually, if one considers the matter with an open mind, one soon realizes that well-choreographed storytelling on a huge scale probably can be morally edifying, especially in the absence of competition from other media, like the movies.

West's problem here was to invent a gestural rhetoric that would decorously tell the story of Agrippina, as related in Tacitus' *Annals.* Agrippina was the wife of Germanicus, a Roman general distinguished largely by his victories in Germany; he was also the nephew of Emperor Tiberius. As time went by, Tiberius grew envious of Germanicus' power and popularity, and when Germanicus died in Syria of unknown causes, Agrippina suspected that Tiberius had had him poisoned. As an implicit indictment of the emperor, she recovered her husband's ashes and returned with them to Italy; West's picture shows her disembarking at the port of Brundisium (Brindisi). The virtues he celebrates here are courage and family loyalty, which scarcely seem respectable subjects to us moderns, with our fondness for subversion in the arts. But in a hereditary monarchy like Great Britain, there was in fact a subversive tincture to the Agrippina story, since the woman represents old-fashioned republican piety refusing to bow to royal tyranny. Once again, West had created a piece of painted prophecy, for only eight years later the people of his own homeland would defy the authority of the king.

Considered from the purely painterly point of view, *Agrippina* is deceptive, as well. The smooth, severe handling, which owes something to Poussin's works, suggests an attempt at antiquarian refiguration, as if West were trying here to magically suffuse a classical sculpture group with color and, perhaps, with life itself. A closer look, though, discloses two distinct manners at play within the same image. At the center of the tableau, as on a raised stage, Agrippina and her retinue appear lovely but unreal; rendered in a glacial grisaille, they suggest a chunk of bas-relief broken off the pediment of some ancient temple. To the right and left, in much more vivid colors and often rather baroque poses, crowds a multitude of onlookers who function more or less as a tragic chorus. The people in the scene are mostly spectators, not actors, and what the painting is really about is not virtue itself but the contemplation of virtue, not the past itself but the modern imaging of the past.

Agrippina was painted for an archbishop, but when King George heard about it he asked to see it, and that

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was how West got to know him. Greatly impressed, the king had the canvas carried all around the Court of St. James's in order to behold it in different lights; then he called for the queen, "to whom he introduced the artist with so much warmth," as John Galt was later to write, "that Mr. West felt it at the moment as something that might be described as friendliness." He also commissioned a picture from Roman history for himself, and thus West's position as a court painter was established.

Examined in detail, West's long association with George III constitutes a curious chapter in the history of Anglo-American relations, and it also affords a prolonged glimpse of West the man, who does not yet emerge as a vivid figure, as his letters have not been collected and studied. West and King George were both born in 1738, but socially they moved in contrary motion. King George was the first of his dynasty who was a true Englishman (his predecessor George II had spoken German as a mother tongue) and he wished to present himself as a "patriot king." By contrast, West's father was an Englishman, a Quaker immigrant to the Colonies; yet the son himself was thoroughly American. As one follows the relationship and eventual falling-out of West and the king, one cannot help but be struck by the enormous distinction that Londoners of the late Georgian period made between Englishmen proper and first-generation Americans of English origin. After Britain lost her transatlantic colonies, an American like West lay under a dual suspicion of barbarousness and disloyalty; and by the 1790s his coonskin background had returned to haunt him.

George III was insufferably straitlaced, and his feeling for the arts was slight. He also suffered from "madness" (actually the disease porphyria), a fact that West indelicately ignored in painting pictures with a King Lear theme. Generally West deported himself as respectably as the king, but he was vulnerable on the score of his wretched education. Much of what we know of his character comes from the diary of a man named Joseph Farington, a mediocre painter and member of the Royal Academy with a fine nose for Academy gossip. "Mrs. West told me," he confided once to his journal, "that in the 40 years she had been married to Mr. West she had but once seen him intoxicated; & never saw him in a passion. She said that He was so devoted to drawing while a Child, and a Youth, that every other part of his education was neglected." Clearly, Elizabeth West was a plus in West's incipient public relations battle.

As a painter West felt that he was one of the immortals, but he had little wit and no tact. The Americans did not enlist him for diplomatic tasks, and the king took increasing offense when stories reached him of West's casual and ill-considered remarks about his admiration for Bonaparte. In 1794 we find him informing Farington of his alarm at "the King's having been told of his [West's] holding democratic principles." Strong as a painter, West seems to have been weak as a man.

Pennsylvania Academy of the Fine Arts

West's famous *Penn's Treaty with the Indians* was dated 1771 and was exhibited at the Royal Academy the next year. It carefully and nobly records an event that, it is believed, never happened. No actual treaty is known. The event allegedly took place in 1682, shortly after Penn arrived in the Colonies.

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Country bumpkin to Royal Academy

Apparently the king, who had resented the sneaky military tactics of the rebellious American irregulars, now regarded West as a sort of guerrilla conversationalist, a Yankee-Doodle in a covert. Echoing one rumor in the autumn of 1804, Farington noted the king's feeling that "if West set out with one opinion & discovered that the King differed from Him. . . Like a true American He would creep from one Shoulder to the other behind His back & then appear to be of the same opinion with the King. . . ." A few months later Farington wrote that the king now seldom mentioned West's name "without a degrading epithet" and that West had "lost much of his Majesty's favor." Citing a courtier friend, he added that the "Queen and Princesses all disliked West and never spoke of him but with disgust, which impression [they probably took] from the King. . . . The King had often declared that West was unfit to be President of the Royal Academy." Later Farington noted the "excessive indiscretion of West, situated as he is with the King, in speaking in the manner He does of the state of Europe & his partiality to Bonoparte. He talks in such a way as cannot be agreeable to the feelings of Englishmen & He ought to be advised to the contrary. I told [an acquaintance] that West certainly has not an *English mind* & is kept to this Country only by the Income He receives from the King, & by His Sons having married here. . . ." Obviously West himself was no longer "agreeable to the feelings of Englishmen," yet with his venerable age, his talent for placation and his affable (if indiscreet) manner, he retained the presidency of the Academy until his death. He was offered a knighthood, which he turned down because he hoped for a peerage. But he did not receive one.

Whatever his disappointments, West's professionalism was extraordinary. It is little short of baffling that the man who painted *Agrippina* could also have painted *The West Family* about 1772, a work of realistic observation that stays very close to its visual sources; or the large portrait of *Mr. and Mrs. John Custance* in 1778, which represents a brilliant attempt to revive the fluttering baroque manner of the 17th-century Bolognese master Guido Reni. West gave no sign of being the least bit uncomfortable with any of these utterly distinct modes, though he executed all three pictures within a few years of one another. Even more startling, however, was West's decisive move, in the mid-1790s, into a sort of unrestrained neo-Baroque bravura painting, full of darting brushwork and audaciously broad tonal masses. The bearer of this astonishing explosion of energy was a 50-inch-long oil sketch for a huge apocalyptic panorama to be entitled *Death on the Pale Horse*. Here West became a soothsayer pure and simple. Anybody who thinks that he can pull off a history painting must feel in his bones some gift for prophecy; he must feel, not necessarily that he can predict the course of events—that is, the narrow sense of the word "prophecy"—but simply that he has some intuitive grasp of the way that a momentary coalescense of figures can disclose their moral provenance and destiny. *Death on the Pale Horse* depicts a scene from the Book of Revelation, but it is less about doom in the abstract than about mankind's own power of destruction, as recently evinced in the terror that had descended on the French people. A frighteningly direct confrontation with evil, it anticipates not only Napoleon's invention of total war but also the Romantic fury of Géricault and Delacroix. As a development of the craft of painting, it manages in an almost abstract way to fill a broad surface with vectors of whirling force, and thus seems way ahead of its time.

The art of Benjamin West poses a set of fascinating questions. To what degree is it possible, for instance, to turn away from the personal experience of nature and invent a moralizing fable in paint? How successfully can even the most versatile creator leap from style to style, as if all of art history were a repertory at his disposal? Is a position in the national bureaucracy reconcilable with the sort of intimate truth that we expect from great art? In the end, I think we must answer these questions with a single, if complex, reply. West's problem was not that he painted the wrong paintings for his temperament, or too many different kinds of paintings, but that he painted too many paintings altogether. He was fundamentally a careerist, and in his headlong flight forward he often ran awkwardly and stubbed his talent. That talent, though, was real.

Mohawk brave is a shadowy presence in West's *Portrait of Colonel Guy Johnson*, an Indian affairs officer.

National Gallery of Art

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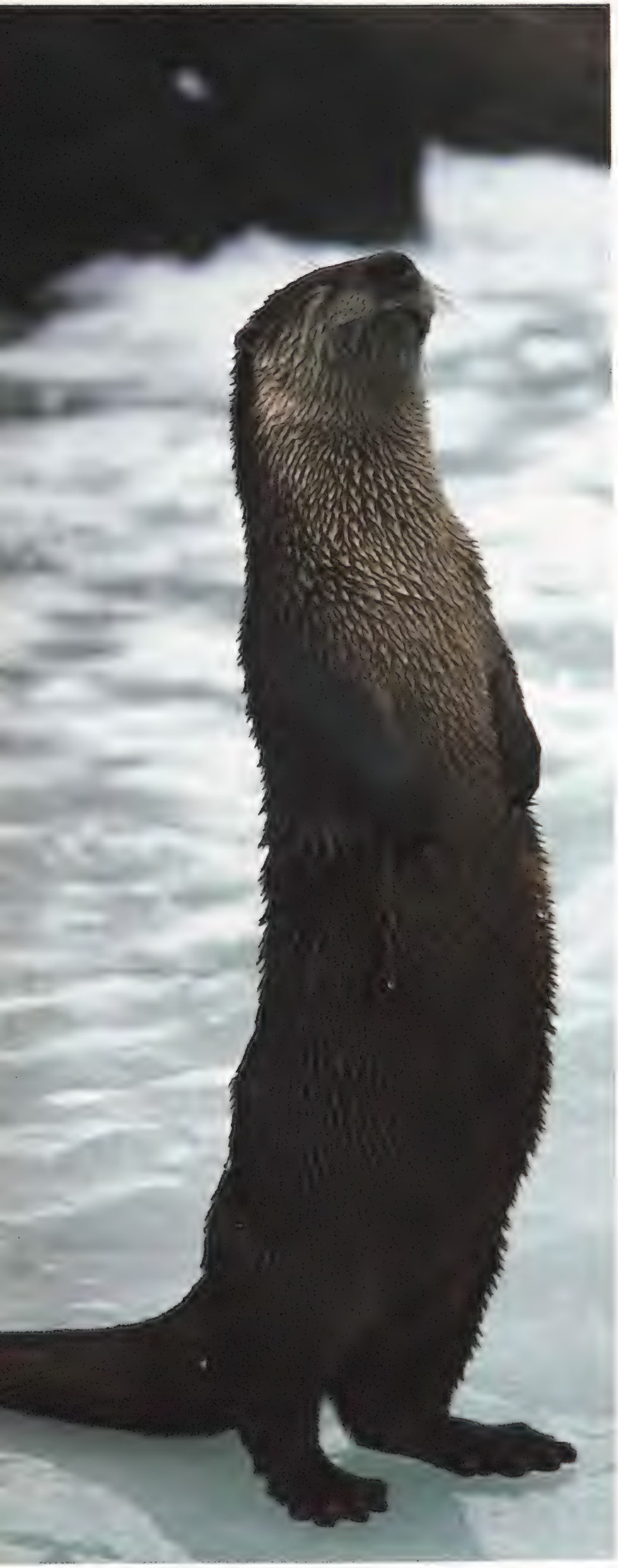


At left, curious river otter takes up tripod stance; its powerful tail helps to give support. Grooming by a

By David M. Schwartz

The comedian of America's wetlands stages a comeback

The North American river otter is frolicking in the wild in increasing numbers thanks to state restoration efforts and some innovative bartering

muddy bank (above), otter rubs down its coat. Otters can die of exposure if their underfur stays wet.

Eel is one of this Florida marsh otter's favorite foods; its diet includes frogs, crabs, small fish.

If ever an animal did not need a PR agent, it's the river otter. Show me a man, woman or child who, after a five-minute introduction, casts an indifferent eye toward otters and I'll show you a stone-hearted curmudgeon incapable of melting to the allure of any creature great or small. I've not yet met one.

After all, we're talking cute. "Whatever it is that determines cuteness by the human perspective, otters fall right in," says Pat Foster-Turley, co-chairman of the otter specialist group of the International Union for the Conservation of Nature and Natural Resources (IUCN). "They are charming animals."

Maybe it's their vaguely humanoid features—the bluntly rounded face, the inquisitive eyes and beseeching look, the hirsute upper lip with its rakish mustache, the dexterous paws. Maybe it's the endearing demeanor of a mammal that humps along like a fur-covered Slinky toy on land, but in water transforms into a sleek, darting gymnast.

Quite possibly the otter's unimpeachable reputation is aided by a protean quality that allows it to resemble any number of other animals—most of which, as it happens, also score high in popularity. When faced with a curious human observer, an equally curious otter stands up on its hind legs like a prairie dog or meerkat. When poking its head and neck out of the water to survey its surroundings, it smacks of a glistening seal. When scrambling through vegetation, hell-bent on insinuating itself into the nearest body of water, it is a spaniel or retriever. Hauling its tubby torso out of the water as sunlight glints off stiff, translucent whiskers, it is a laughably undersized, undertoothed walrus.

But for all the otter's visual appeal, what it does is even more compelling than how it looks. For centuries, otter observers have celebrated this creature's clownish good humor and penchant for perpetual play. In the 13th century, Saint Albertus Magnus, whose writings on natural science fill 38 volumes, reported of the otter, "*Alacris ad ludos est*" ("Quick to the game is he"); more recently, Ed Park opened his 1971 book, *The World of the Otter,* with this claim: "If an otter can't have fun doing something, it just simply won't do it." Undoubtedly, the biggest image boost came from Gavin

Otters can move along at 15 miles per hour across snow or ice by using long, loping steps and belly slides.

Demeanor of a beached otter, drying off on sand, shows why the animals are their own best PR agents.

Maxwell, whose *Ring of Bright Water* transported more than a million people to Camusfeàrna, the Highland cottage by the sea where he lived with two enchanting companions—the otters Mijbil and Edal. "Very few species of animal habitually play after they are adult," wrote Maxwell in his book that was made into a motion picture. "But otters are one of the few exceptions to this rule."

Indeed, the otter's playfulness seems to fly in the face of some behaviorists who insist that play exists only for its survival value. Young animals cavort to sharpen their reflexes, say the purists; they tussle to hone hunting skills. "But how do you explain adult otters sliding into the water and then, just for the heck of it, running up the bank and sliding back down again?" asks Foster-Turley, who has worked with three otter species in North America and Asia. Otters are notorious sliders, and are naturally winterized and waterproof. They throw themselves into their sport headfirst and belly down, usually ending the glissade with a whopping splash. Their wet fur glazes the clay- or snow-covered riverbank to a bobsledder's delight.

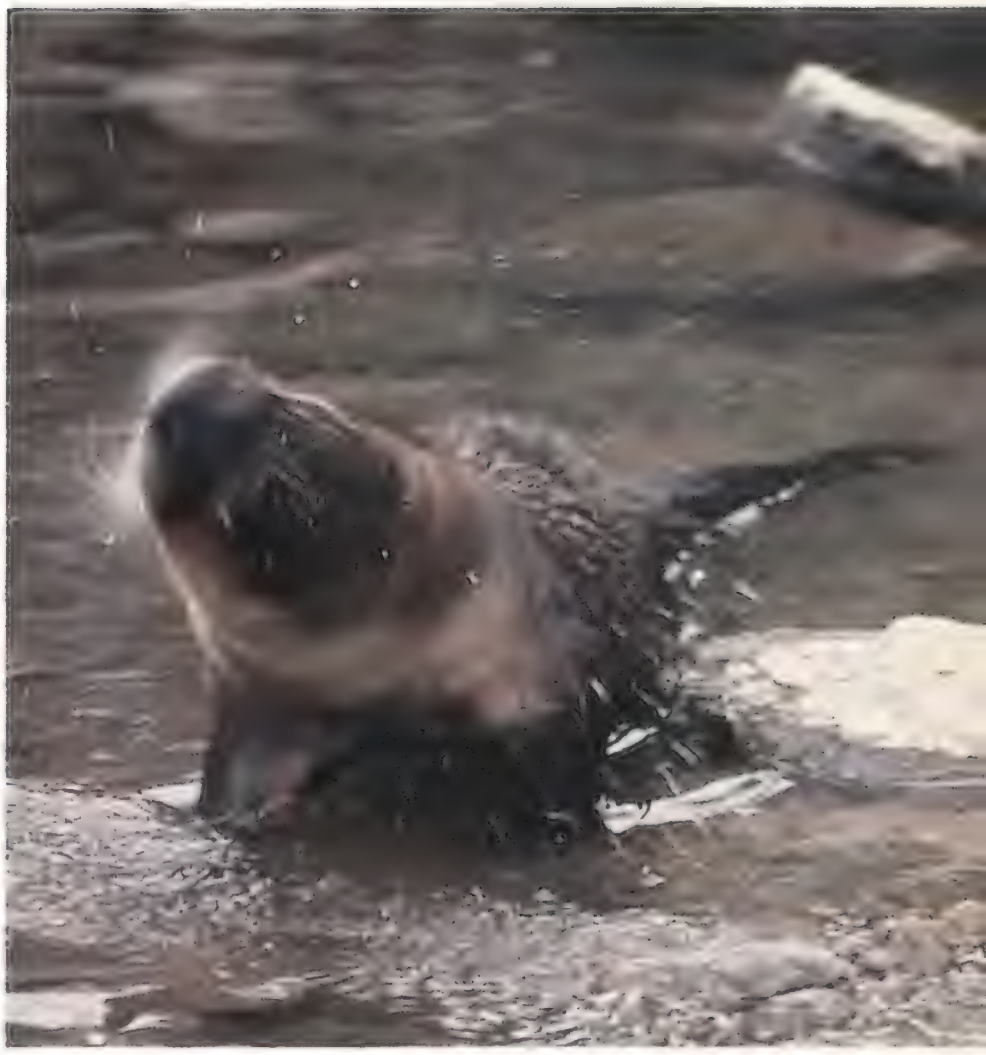
Given the chance, otters will make even so mundane a task as overland locomotion into a high old time. On snow or ice, they alternate loping steps with belly slides that carry them 10 or 20 feet. In this fashion, they can move along at 15 to 18 miles per hour. (Their sliding tracks—wide, flat trails across the winter landscape—are visible from low-flying aircraft, a fact exploited by biologists surveying otter populations.)

As a scientist, Foster-Turley hesitates to use the word "fun," but with otters she comes close. "When I see one balancing a pinecone on its nose, then pulling it underwater and letting it bob to the surface, then shooting up and jumping on it, there's nothing else to call it." After all, she points out, otters are quick-witted, skillful animals to whom a productive river or marsh is an unchallenging all-you-can-eat buffet. And when they've had their fill of fish, frogs, crabs and other delicacies, they've got time to kill. So why not play?

The delightful antics of otters do not seem to run in the family, taxonomically speaking. As members of the Mustelidae, otters are related to weasels, badgers, minks, skunks, fishers, wolverines, and a few other sinuous carnivores with long bodies, short legs and potent musk glands, but none of these has ever been accused of having a sense of humor. Most mustelids, including otters, are voracious predators who, pound for pound, are among the most powerful mammals on Earth. Many keepers of pet otters have confronted the

David Schwartz is a regular contributor to these pages. His most recent article was a profile of writer-adventurer Richard Halliburton, in March.

In the winter they need to find open water to feed; their home range may cover up to 100 square miles.



Shaking itself off like a dog, an otter leaves water. Born swimmers, they need clean water to stay healthy.

immutable truth that a 160-pound human cannot pin down a 16-pound otter. Gavin Maxwell's otters moved rocks weighing 60 to 70 pounds, and in a 1911 article in *Forest and Stream*, M. Hardy reported, "I have seen a chain which seemed strong enough to hold a Horse, broken by an otter."

At least one of the world's otter species—the total number varies from 12 to 22 depending on which taxonomist you ask—can be found on every continent but Australia and Antarctica. All are unmistakably "otterlike" in appearance and deportment, but there is a considerable diversity in size, from the Asian small-clawed otter, weighing in at under 10 pounds, to the Alaskan sea otter, ranging up to 85 pounds. The giant Brazilian otter is a six- to eight-foot behemoth.

North America's semiaquatic river otter (*Lutra canadensis*) is actually misnamed, for it lives at the edges of many aquatic habitats, including swamps, marshes, small lakes and seacoasts. It divides its time between water and land, often denning beneath fallen trees, rocky ledges or thickets. This continent's only other otter, the Pacific-dwelling sea otter (*Enhydra lutris*) is truly a marine mammal, confined to a life in the ocean. In its classic posture, a sea otter floats on its back while smashing mollusks and sea urchins on a flat rock balanced on its chest. Ranging from Ireland to Siberia, the Eurasian otter (*Lutra lutra*) is closely related to the North American river otter and resembles it in appearance, size, habits and—unfortunately for both—history.

Though it basks now in the sweet glow of public adoration, the otter's image has not always been an enviable one. Adroit fish predators, Eurasian otters easily earned a reputation as rapacious pests. Never mind that they, like their American cousins, are opportunistic and carnivorous—more likely to snare a slow-moving sucker than a quicksilver trout, and just as happy to eat a frog or crayfish. Early English records show otter hunts dating to the reign of King John in the 13th century. Church wardens and constables put a price on their heads: in many areas it was sixpence or a shilling, three times the rate for a weasel. By the end of the 19th century, large shaggy dogs called "otter hounds" had their noses to the ground; one celebrated pack disposed of 704 otters in 20 years. Hunting methods were hardly humane; dogs chased the otters into nets, and hunters impaled them with barbed spears.

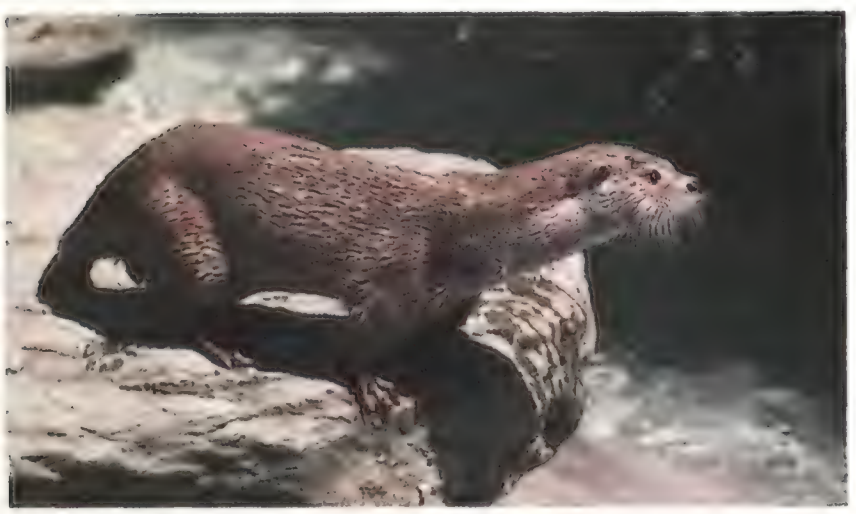
On this side of the Atlantic, otters fell victim to the financial incentives of a market that valued their thick, luxuriant coats as much as the beaver pelts that were the currency of the frontier. Before the trappers arrived, otters inhabited nearly every stream, river, marsh, and lake between the Atlantic and the Pacific. In the mid-19th century, county histories in the well-

watered state of Missouri were peppered with descriptions such as "found in great numbers" and "plentiful." But by the 1930s, two wildlife biologists surveying the same state had to conclude, "The otter is virtually extinct in Missouri." Overtrapping had done them in.

Missouri is not alone. The river otter has been in decline in the broad swath of America's midsection that encompasses the watersheds of the Ohio, Missouri and Mississippi rivers. But in the vast and watery wildness of southern Louisiana's bayou country, otters have held their own. This geographically determined fact, combined with the unique enterprise of a single Cajun family, is going far to replenish otter stock throughout the American heartland.

On the screened porch of a three-room building that his family calls the Otter Operations Center, I find Tom Sevin, a solidly built, bearded young man of 35, engrossed in the daily chore of mixing specially formulated "otter chow" in an industrial-grade meat grinder. Minutes ago, he had docked his boat ten yards away on the shore of Bayou Dularge and unloaded a fresh supply of ingredients. Dularge is one of five bayous that diverge in the nearby town of Houma and stretch out like a slightly twisted hand across the "toe" of Louisiana. Their sluggish waters teem with a rich biological gumbo that supports Louisiana's vigorous otter population, which in turn supports the thriving Sevin family business, Bayou Otter Farm.

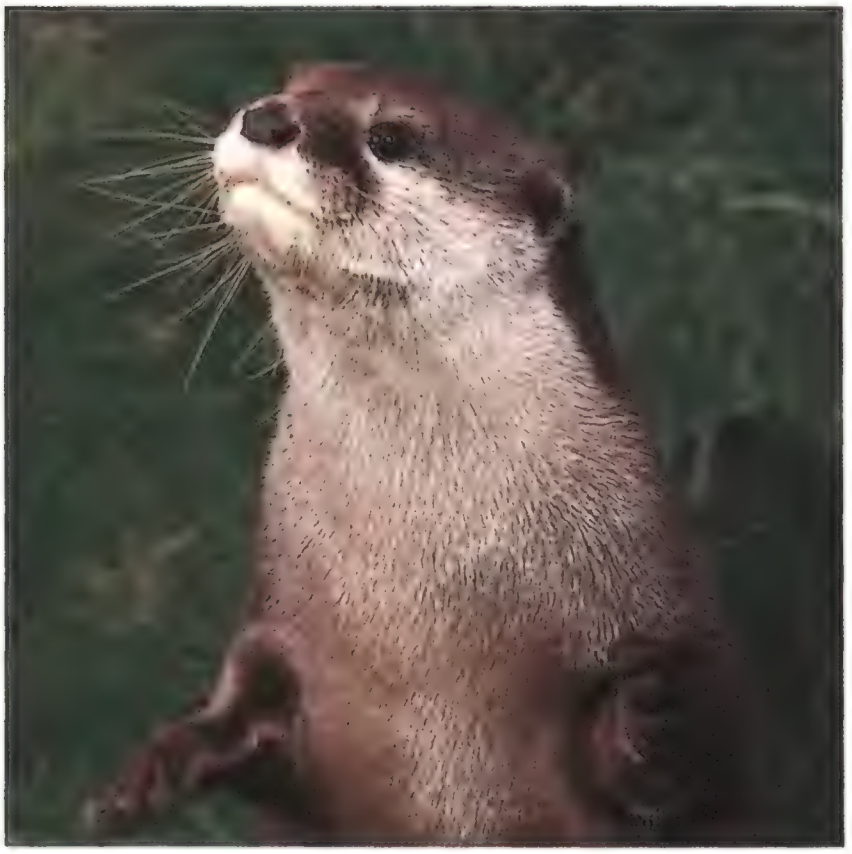
In blue jeans and a slightly soiled plaid shirt, Tom is apologetic about his attire but, in the sonorous, evoca-



The Eurasian otter, close kin of the river otter, has been protected in Europe for the past ten years.

Sociable giant Brazilian otters were practically exterminated by fur trade; they grow to eight feet.

Victim in Prince William Sound oil spill, the sea otter had earlier been making a comeback in Alaska.



Asian small-clawed otter has dexterous paws. It is the world's smallest, weighing less than ten pounds.

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Lee Roy Sevin and granddaughter Nicole carry wild-caught river otter that will eventually be bartered.

Nicole feeds a 6-week-old otter; some captive-born pups are hand-weaned to accustom them to humans.

tive tones of Cajun-accented English, pridefully eager to explain. "We're always out here working, looking like hobos," he says, dumping a basket of lemons and a measured cup of cod liver oil into the hopper. As we talk, I watch the blades churn them into a ruddy stew containing Purina Chick Starter and the ground meat of nutria, a large rodent abundant in southern Louisiana. At this time there are about 200 otters, individually caged, in another building—jokingly called the Ottertaurium. Tom motions to the adjacent room where his mother, Diane, is bottle-feeding two curled-up otter pups born three weeks earlier. "It's worth it," he adds, softening. "I love those little ones."

"I hate to see a dead otter"

It was just that sentiment, along with the need for cash, that led Diane and her husband, Lee Roy Sevin, to enter—rather, to invent—the otter business in 1957. Both grew up in the poverty of bayou-country subsistence, the children of trapper-fishermen who caught or raised most of their food, but couldn't earn enough money for other necessities. Lee Roy never knew the encumbrance of shoe leather until his first communion at age 10. As an adult, he scraped by as a trapper himself before discovering that he could pay other trappers ten times as much for live otters as they got for pelts, and still sell the otters for a handsome profit. Big-city zoos like those in New Orleans, Chicago and San Diego, as well as private roadside menageries and individuals wanting pet otters, responded to his classified ads in *Fur, Fish and Game.* "Lord, I got more letters than I could answer. They poured in." The business was launched. It was a double boon for Lee Roy Sevin, who, despite a life among trappers, readily admits, "I hate to see a dead otter."

Since trappers catch otters in fall and winter, and Northern customers want them delivered in spring, the Sevins had to figure out how to keep them healthy in captivity. To their surprise, they found that an all-fish or all-meat diet was not the ticket. Without fiber and vitamins, otters quickly fall ill—hence the chick feed, lemons and fish oil. (In the wild, they consume an occasional plant, along with the vegetable matter in the gut of their prey.) Just as important, the Sevins found, was an intangible ingredient they happened to have in great supply, love.

"If you want them to eat, you've got to talk to them," Lee Roy tells me after he joins us. He demonstrates on the 3-week-old otter puppy that Diane is holding. "You've got to say, 'C'mon baby, let's eat now, you little boogalee.' " His voice rises and falls musically, straying into falsetto on the Cajun endearment "boogalee." "I do this for two or three hours when they first come in. Sometimes it takes two or three days." Diane squeezes

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Photographed at Harry Winston.

the last drops of formula down the gullet of her charge. Its eyes droop. She gives it a gentle shake. Its body relaxes and jiggles like gelatin. "One bottle and their lights go out."

Now considered to be leading experts in otter care, the Sevins field panicky phone calls from zoos, game farms, state wildlife departments and others in need of advice. State conservation departments now figure into the Sevins' business in a big way, and the state of Kentucky is the biggest customer of all, with standing orders for 180 otters a year. But the Kentucky otters are not destined for a life in captivity. In fact, none will even set paw in the Bluegrass State, for Kentucky's real interest is in another animal entirely.

By a quirky triangular trade reminiscent of that of the bartering trappers of the frontier, the Sevins' otters, born in Louisiana and purchased by Kentucky, are trucked directly to Missouri, where they are released into the watersheds they disappeared from decades ago. To complete the deal, Missouri delivers wild turkeys—36 for every 20 otters—to Kentucky.

David Hamilton, wildlife biologist with the Missouri Department of Conservation, explains the exchange. "We want otter and Kentucky wants turkey. We've got plenty of turkey and since Kentucky doesn't have surplus otter, they have to get them in Louisiana." Compared with cash transactions, wildlife trades are easier to negotiate. In the past 20 years, bartering has become the standard way for states to obtain everything from warm-season grass to largemouth bass. Sometimes the trades appear taxonomically lopsided: Colorado swaps bighorn sheep for Oregon otter and white-tailed ptarmigan for Utah moose.

The object of all this commerce is to restock native species that have fallen on hard times. Reintroductions have been going on since the 1930s—the turkeys traded to Kentucky are themselves the product of a hugely successful restoration program begun almost 35 years ago—but few have generated as much outright hoopla as Missouri's recent otter comeback.

At 9:15 on a clear but bracing April morning, a tan Ford Ranger whose doors bear the seal of the Missouri Department of Conservation (MDC) turns off the highway onto a single-lane road that skirts a stubbly cornfield and dead-ends at Huffmann's Ford, a small neck of gravel and ledge jutting into a meander of the Bourbeuse River. The site looks like a dealership for used pickup trucks, and 50-odd people are milling about waiting to witness the release of 20 river otters to their natural home. Hamilton tells me that at some releases "we've had 600 to 700 people show up." As he backs his truck toward the river, the throng shifts to examine the cargo: six heavy-gauge wire cages containing the squirming, squalling, generally restive otters—ten males and ten females—that have no way of knowing how much more contented they will be in half an hour. But now they are peeved: they've been on the road, in cramped quarters, for several days. Yesterday they were anesthetized, weighed, examined, and tagged with tiny metal identification plates stapled to their ears and to the webbing of their hind feet.

If the MDC has gone to great pains to publicize this event and five others taking place around the state, there's no question that Missourians deserve the invitation. It was their votes in 1976 that approved the nation's first conservation sales tax, and consequently their dollars that pay for otter restoration along with other programs. Since 1982, there have been 511 ani-

A river otter lands after a great leap forward on the ice; it may now be preparing for a quick takeoff.

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Sevin snuggles two 6-week-old baby otters that have been born in captivity. Some pups are hand-raised by the Sevins for three months and then sold as pets or to zoos. The pups' mother was wild-caught and later sent to Missouri under the exchange program; there she was released to the wild.

mals released at 22 sites, and plans call for an additional 400 to 500 by 1993.

There is another, perhaps more important, reason to celebrate. "There may be no better indicator of the quality of aquatic habitat than river otters," Hamilton had told me as we crossed the Missouri River earlier that morning. Like bald eagles and peregrine falcons, otters sit at the top of their food chain, a tenuous perch that leaves them vulnerable to the unkind byproducts of human activity. Also like eagles and peregrines, there is evidence that their reproduction rate falls when pollutant levels build up in their tissues. "Toxic chemicals, heavy metals, pesticides, agricultural wastes —they all end up in the river otter," says Hamilton. "So if we can manage a river otter population, we're doing a pretty good job at managing aquatic habitat and providing a good environment for everything else in the system." In fact, some European countries have found that the best way to evaluate water quality is to look for otters. Their presence is the acid—more precisely, the no-acid—test.

And so, in the summer of 1984, when a trapper phoned to report a female otter with two pups near Swan Lake National Wildlife Refuge, where the "Class of '82" had ventured forth two years earlier, the biologists cheered. But reports from the public are unreliable and the celebration was tempered with caution. Later that year there was no doubt: MDC personnel were called in to examine a yearling otter accidentally captured in the same area. It lacked the ID tags that were permanently attached to all released animals. Hamilton still beams. "It was confirmed reproduction!"

The throng at Huffmann's Ford is small but enthusiastic. "We moved here from St. Louis because of the clean water and the wildlife," explains a woman with a camera dangling off one shoulder. "We weren't going to miss this." Gesturing toward the swarm of kids hovering around Hamilton's truck as the otter cages are unloaded, she winks. "I just couldn't let mine go to school today. They were 'terribly sick.' "

Despite the chill, interspersed among the overalls, plaid shirts and grain company caps of this farm crowd are several T-shirts reading "Bring 'Em Back to Missouri," and a sprinkling of lapel buttons declaring "Ottermania—Release It!" The T-shirts—depicting an irresistible otter poking its head out of the water—are a fundraising project of the Missouri Trappers Association, which has donated almost $2,000 to the cause.

The MTA also shows support by voluntarily pulling beaver traps from hundreds of miles of riverbank where they might imperil otters. Since 1982, 30 of the state's otters have died in traps. Although these outdoorsmen dream of a future of otter abundance, their generosity is not based entirely on selfish motives. "Of course we hope we'll be able to trap otter eventually," says MTA conservation director Dan Miller, "but even if that never happens, we're thrilled to have them back. They belong here."

After setting the six cages on the riverbank, Hamilton and Kevin Bryant, the department's county conservation agent, deliver short speeches on otter natural history and its checkered past in Missouri. Area residents are urged to act as the department's eyes and ears, to report sightings and to turn in any accidentally killed or captured otter. Then Hamilton and Bryant open the cages and 20 of nature's most talented ham

actors take the stage. Most exit quickly, but a half-dozen stay in the limelight. Three play tag on a sandy spit below the rock ledge. One rolls off a submerged log into the water, then hoists itself up and repeats the performance, each time slapping the surface with a resounding—could it be deliberate?—*plop*. And another preens itself on the bank, obligingly striking every otter pose in the Walt Disney handbook. Cameras wind through film so fast you might accuse Kodak of staging the whole event.

While ottermania rages in Missouri, 14 other states have experienced at least minor epidemics. From Arizona to Virginia, inland waters are becoming reacquainted with otters. Iowa, whose otter restoration program may be second only to that of its southern neighbor, holds the undisputed attendance record for a single event: about 1,800 people showed up at a release site near the town of Peterson (pop. 473). And in other parts of the world, representatives of countries at loggerheads on many issues are sitting down together to figure out why their otters are disappearing, and how to reverse the trend. Pat Foster-Turley's IUCN group is lobbying to have the otter designated an international symbol of wetlands, and India is the first country to sign on.

For both biological and emotional reasons, a better symbol would be hard to imagine. In her job as conservation director of the Marine World Foundation in Vallejo, California, Foster-Turley uses otters to help deliver environmental messages. "Everyone loves an otter," she says. "People seem to have the idea that otters don't have a care in the world, and when these folks come up to me and say, 'If I'm ever reincarnated I want to come back as an otter,' they think they're the first to have the notion. But I've heard it at least ten times!"

I considered the idea for about three-quarters of a second, recalled the otters I'd seen cavorting on the bank at Huffmann's Ford and told her to make that 11.

When river otters are released in Missouri it's a local attraction and enthusiastic groups always turn out. The state conservation department has reintroduced 511 animals since 1982, plans for 400 more by 1993.

By Mark Bernstein

John Patterson rang up success with the Incorruptible Cashier

With systematized sales, a streamlined factory and well-cared-for employees, he made the cash register the essential tool of retailing

Miniature register, called "three key sample," was specially made for NCR salesmen to carry discreetly.

John H. Patterson built the National Cash Register Company with a flair for salesmanship, a gift for organization and an absolute genius for firing people. Some of his firings were truly spectacular: one executive returned to headquarters to find his desk and chair gloriously ablaze on the company lawn. He could fire repeatedly. Charles Kettering, an NCR inventor later turned wizard of the auto world (SMITHSONIAN, July 1988), was recurrently hired and fired, once because he nearly slipped from a horse during an equestrian event Patterson had organized to build executive character. He could fire en masse. Displeased with his cost accounting department, he once marched its members, ledgers under their arms, to the boiler room. There, records were consigned to the flames and employees, as far as Patterson was concerned, dismissed to oblivion. He could afford to do these things, he maintained, because at NCR he had created an organization that relied less on men than on system.

It began in Dayton, Ohio, in 1884, when Patterson acquired the rights to the cash register, a device for which there was then no discernible demand. By about 1910, he had made the cash register the essential tool of retailing, as necessary to the merchant as the block to the butcher or the anvil to the blacksmith.

To accomplish this, Patterson systematized sales, introducing most of the methods of merchandising used by industry to this day—from direct mail literature to annual sales conventions. He systematized production, replacing the grimy, hazardous industrial plant with a gleaming steel-and-glass factory campus. And he systematized the workplace, where he pioneered an employee-welfare program unequaled in its time and frequently not matched today.

System may have permitted dismissals; personality impelled them. Patterson, among other things, was a crank. He pursued a varied list of causes, ranging from shredded wheat to landscape gardening to municipal reform, subjects about which his thousands of employees heard a great deal more than they likely wished to know. In his manner, Patterson reflected the personalized rule possible when owners managed and managers owned. In his methods, he pointed the way to the modern corporation, with ownership dispersed among stockholders, power diffused through committees and personality reduced to a logo.

In a sense, the modern business organization has lost the power Patterson prized most: the ability to be arbitrary. Patterson's life offers comment on whether

Employees reluctant to give up "trusted" control of the cash often barred agents' path to their bosses.

John H. Patterson, shown here late in life, forged career by force of personality, system and innovation.

this is a loss to be mourned. "What do we live for?" he regularly asked. The question was rhetorical; the answer his own: "To do good." Which, among other things, he did.

In his maturity, Patterson was a gamecock, moderate in height, wiry in build, jittery in movement and irascible in expression. He had been born in 1844 to a large Ohio farm family that was sufficiently prosperous to send him to college. He attended Miami University in Ohio, and Dartmouth, where he acquired a degree and a lifelong distrust of college men. Private life attracted him little more than learning. His marriage came late, at 43, to wellborn Katherine Dudley Beck of Massachusetts. It ended with her death from typhoid fever six years later, leaving him with two children, whose upbringing he largely delegated.

His focus was business, which he entered at age 25 as a coal dealer in Dayton, Ohio. His product, he reasoned, was largely generic; success lay in service and promotion. He built customer confidence through guarantees and reduced complaints by giving people accurate receipts. He reached for the public eye, installing one of Dayton's first telephones and using a fleet of delivery wagons that read "Patterson & Co." And he signed an exclusive agreement to market Brooks coal, believed superior. When the suppliers of Brooks wanted out of the agreement, Patterson's response was characteristic: "You will regret it only once," he stated, "and that will be all your life."

Business prospered; Patterson expanded. With his brother Frank he gained interests in coal mines, a railroad and a miner's supply store. To his chagrin, that store lost money, even though, Patterson said, it had "almost no competition and our prices were high." The reason, he discovered, was that his clerks were consistently shortchanging the till. At the time this was a seemingly insoluble problem for retailers. Receipts were kept in an open cash drawer, a veritable sieve that

Paper-roll cash register was one of the first models sold by Patterson.

leaked currency through employee theft, honest error and scrambled bookkeeping.

A Dayton saloonkeeper named James Ritty stumbled onto a solution while sailing to Europe in 1878. Visiting the ship's engine room, he noted the mechanism used to tally the rotations of the ship's propeller. Back in Dayton, he adapted its principle to the task of tabulating receipts. In 1879 he patented his primitive cash register, grandly calling it "Ritty's Incorruptible Cashier," and awaited customers. Few surfaced; one was John H. Patterson, who bought a pair sight unseen on the strength of the first advertisement he read. They cost $50 each. In the next six months his store turned a $5,000 profit.

As it happened, two financial failures placed the cash register's future in Patterson's hands. First, neither Ritty nor those to whom he sold his invention could make it a commercial success. Merchants could not see why they should pay for a machine to count the money they could count by hand for free. Second, Patterson's budding empire went belly-up and he began casting about for a new, low-cost venture.

In 1883, the National Manufacturing Company, which then held the patents to the cash register, issued new stock. John and Frank Patterson bought all of it. The following year, John Patterson paid $6,500 for outright control, renaming the enterprise the National Cash Register Company.

Patterson's debut was ludicrous. Announcing the acquisition at his club, he was roundly informed that the company was a failure, its product defective and its location a slum. This concerned him, as he had purchased the company without bothering to inspect its factory. He sought out the previous owner and offered to resell. The reply did not reassure: "I would not have it back as a gift." Bridges securely burned, Patterson proceeded. In his rented factory quarters, 13 employees could build 30 registers a month, but demand did not reach even that figure. The problem, Patterson decided, was that far too few people knew about the marvelous machine he was offering.

He assembled a list of 5,000 prospective customers, then deluged them with mail—six pieces a week for three weeks—extolling the virtues of his registers. Not all were pleased. One wrote back, "For Heaven's sake let up. What have we done to you?" In time, Patterson built his list to 1.5 million names. With direct mail, he had created a modern sales technique.

In Arthur Miller's *Death of a Salesman*, Willy Loman sells a commodity never identified. He is, in a sense, selling himself, a survivor of that early tradition of drummers, men who, viewing their personality—not their product—as their chief ware, claimed they could sell anything. At NCR, Patterson laid this tradition to rest. He replaced the glad-hander, selling his smile, with the well-trained, well-mannered sales representative, selling cash registers.

At the time, salesmen sold largely where they chose; if their tracks crossed those of others from the same firm, the competition was thought to keep everybody scrambling. Patterson assigned each salesman a guaranteed territory, then paid him commission on all sales therein. Thus protected, Patterson reasoned, salesmen could

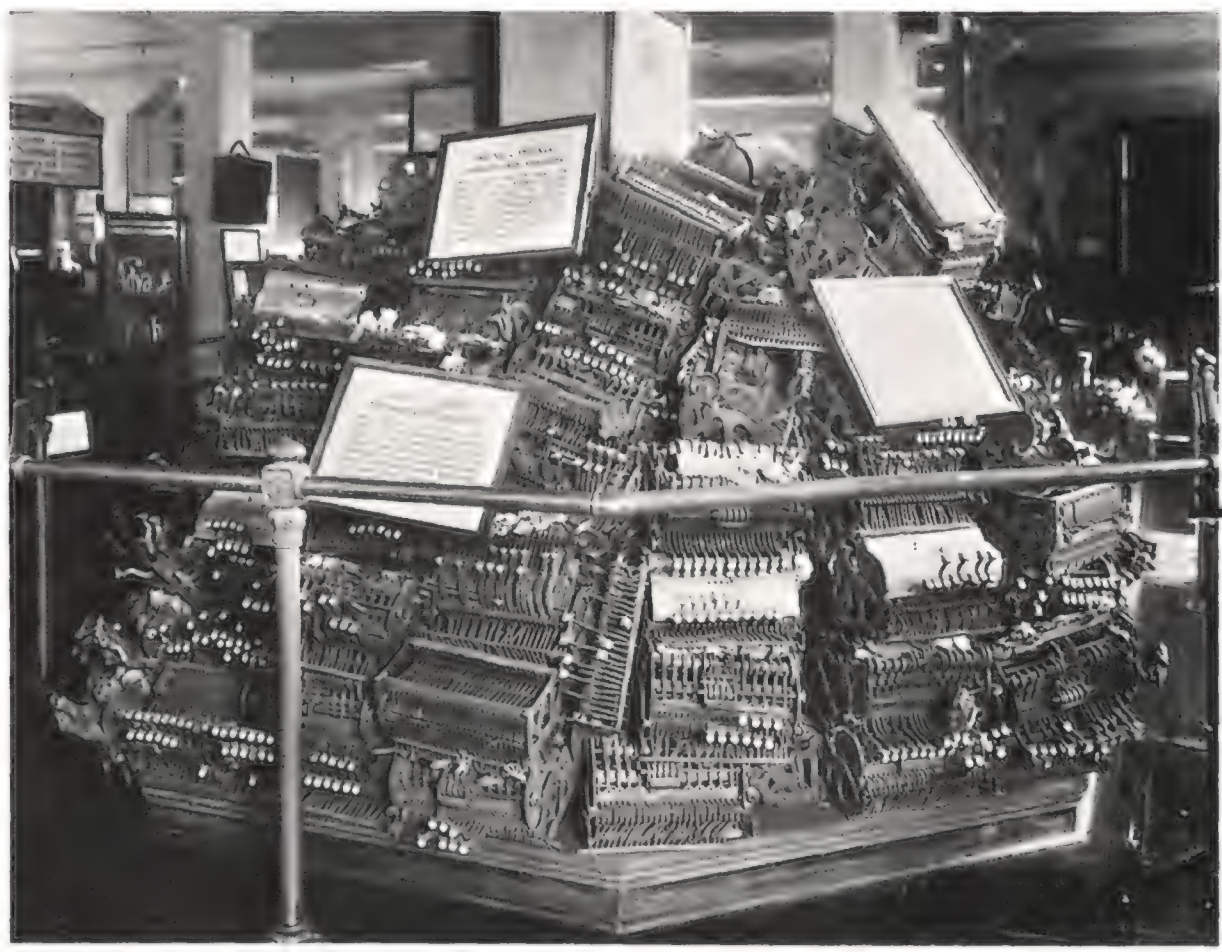

Exhibit of defective registers shipped to England in 1893, and returned in 1894, was installed as a "permanent" display at NCR.

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Inventive glass-walled construction of new factories, built by Patterson as part of his employee-welfare plan, let in light and air.

replace scattershot efforts with the planned, and more profitable, development of their territories.

Next, he made them look and act the part. "Nothing denotes the gentleman more," Patterson wrote, "than earnestness and politeness." NCR salesmen were to inspire customer confidence by staying in the best hotels and dressing with fashionable dignity. Suitable manners followed. When calling on customers, salesmen were instructed to forgo cigars and backslapping, and "answer even the most stupid questions pleasantly."

Finally, Patterson supplied those answers. In 1887, his best salesman, Joseph H. Crane, confided that his success came from giving every prospect the identical sales talk, with all points made in proper sequence. Patterson had Crane's presentation taken down verbatim; from it, he developed the first "canned" sales talk. Later on, he formalized this instruction, using Crane to direct the first sales training school. The central selling message was this: "A National Cash Register is not an expense, because it pays for itself out of the losses it prevents." This theme was repeated in the original 16-page NCR selling primer. Aptly titled "How I Sell a National Cash Register," the publication helped salesmen memorize and overcome objections. For example, if the merchant "can't spare the money," the proper response was: "Which money? . . . all we ask you to spare is the money you lose now."

There were appeals to suspicion: "Well, Mr. Blank, you seem to trust your employees . . . but tell me through which a man loses money—the ones he trusts or those whom he mistrusts?" Appeals to order: "Do you know what department of your store pays you most? What charge was that you failed to put down today? Why not systematize your business so you can work days and rest nights?" And appeals to vanity: the receipt the cash register issued, merchants were told, could carry free advertising and could "even show a likeness of yourself."

The salesmen resisted regimentation. So in 1892, Patterson took to the road, visited 50 cities in 51 days, and brought the men to heel through the power of ridicule and the promise of reward. The tour was prompted by his expectation of hard times. He subscribed to the Cast-iron Rule, a notion popularized by a Midwestern farmer, which held that a business bust was invariably preceded by a drop in scrap metal prices. In 1892, those prices

Mark Bernstein is a Contributing Editor of Ohio Magazine. *He last wrote for* SMITHSONIAN *on inventor "Boss" Kettering in July 1988.*

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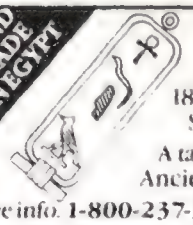

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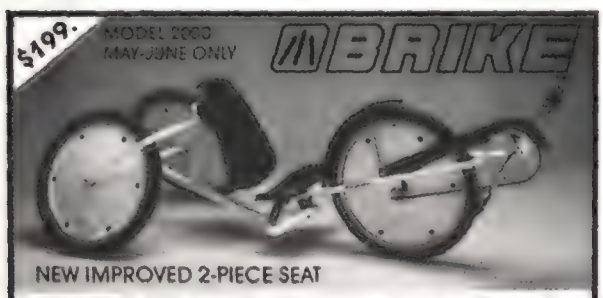

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were falling. With the Panic of 1893, Patterson's sales ideas and his prophecy were vindicated. Six hundred banks failed, 15,000 businesses went bankrupt, but NCR—trained to Patterson's methods and braced by his warning—rang up record sales.

He kept pushing. In 1900, each sales district was given a formal quota. This, if met, brought invitation to another Patterson innovation, the sales convention, then as now "part circus, part camp meeting and part Chautauqua." System supported success: cash register sales, barely 1,000 in 1886, reached 15,000 in 1892 and 100,000 in 1910. The following year, NCR sold its millionth machine.

The Panic of 1893 would set off a four-year depression. Coxey's Army marched on Washington, D.C., Socialist Eugene Debs battled Pullman, and at NCR, worker resentment began to include minor sabotage and even arson. In 1894, a $50,000 shipment of cash registers was returned from England as defective—acid had been poured into their mechanisms. With typical directness, Patterson moved his office to the factory floor to learn why. It proved a minor epiphany. The employees, Patterson said later, "did not care whether they turned out good or bad work. Then I looked further into conditions and I had frankly to confess that there was no particular

NCR Autographic registers were used for employee suggestions; best won cash.

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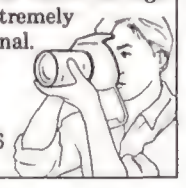

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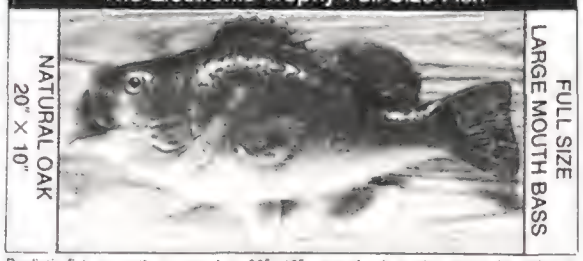

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Patterson conducted classes for sales agents, using his own "easel" technique. Salesmen, he believed, were the key to success.

reason why they should put heart into their work." The problem was 19th-century industrialism—its dark, its dirt, its low wages, its lack of recognition or chance of advancement.

Patterson granted a general wage increase, removed debris, added ventilation and shielded dangerous equipment to protect his workers. Dressing rooms and showers, available for use on company time, were introduced. A factory cafeteria serving subsidized hot lunches was opened. Free medical care was provided at an NCR dispensary. Patterson showed his usual concern for detail. Every six months NCR employees were measured and weighed; those found underweight were issued free malted milk. Combs and brushes, sterilized daily, were available for grooming and, on rainy days, company umbrellas were distributed to homeward-bound female workers.

At the same time, Patterson had architect Frank Andrews recast NCR in well-separated, steel-framed buildings with walls 80 percent glass. The glass, eventually eight acres of it, let most work be done in natural light. Retaining landscape gardeners John and Frederick Law Olmsted, Patterson then filled the open spaces with park-like lawns, trees and plantings.

Workers, Patterson said, also needed "something to stimulate ambition." In 1894 he introduced industry's first paid "suggestion" system. But he maintained that the best stimulation was knowledge, "not merely knowledge of work, but general knowledge of what is going on in the world." NCR opened an employee night school, established a circulating in-house library and inaugurated a program of free lectures and concerts.

A visiting journalist viewed the results of Patterson's efforts with distaste, telling one executive, "I can't

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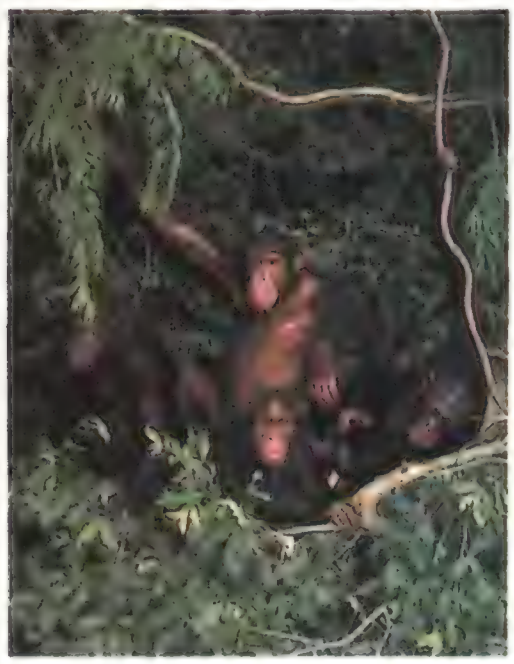

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see that you people are any better off than kept women." The more usual accusation was "paternalism." In truth, Patterson, the friend of labor, thought labor unions should be reserved for employers less enlightened than he. Still, the charge of paternalism—of things bestowed—came largely from Patterson's fellow factory owners, men who themselves made rather a point of bestowing nothing. Reformers generally praised.

Patterson insisted that he wished his efforts copied, not praised. To that end, he opened his factory to visitors, up to 30,000 a year, many of whom he lectured on his methods. He disclaimed sentimentality. His welfare program, he said, had nothing to do with charity. It cut turnover, raised productivity and reduced shoddy work. His motivation was proclaimed throughout the plant on placards that read, "It pays."

Patterson cast his net broadly. "The NCR Weekly," a house organ, was, its masthead stated, "Published in the interest of all concerned in all the NCR Companies. Owners, Makers, Office Forces, Sellers, Users, Non-users, Clerks, Cashiers, Customers, Servants, Children and others, if there are others." Indeed, only two groups permanently escaped the grasp of Patterson's benevolence: his competitors and his executives.

Patterson trained thoroughly. He arguably had the best-orchestrated production and sales system of the time, and in the days before MBAs, it was to NCR that bright young men headed to learn how to run a business. Patterson paid well all down the line and dizzyingly at the top. In 1921, one 30-year-old executive reported total compensation of $50,000, undiluted by inflation and all but untouched by taxes.

For the ambitious, there was another lure. Given the frequent firings, there was always room at the top. At times, the dismissal of NCR executives took on the character of a regular procession. Patterson's dictum was simple: "When a man gets indispensable, let's fire him." Rarely did he wait that long. A subsequent NCR chief executive cited in his autobiography a magazine's claim that between 1910 and 1930 *one-sixth* of the nation's top

Bulls haul wagon delivering NCR registers in Bombay, India. Company entered international market early on, and by 1890 was selling worldwide.

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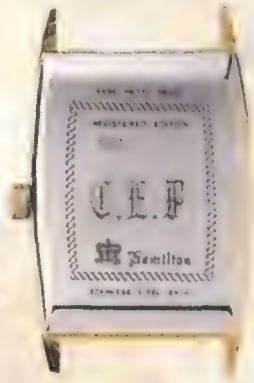

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executives had been trained—and fired—by Patterson. Dismissal came without warning or recourse. "There are just two things," Patterson would tell the soon-to-be-discharged. "Everything you say is wrong. Everything you do is wrong."

Those who remained were hardly unscathed. When executives were absent, Patterson periodically dumped the contents of their desks into the trash, permitting them, as he put it, "to start clean." When executives were present, they were subject to an unceasing flow of presidential memorandums by which Patterson sought to regulate their behavior, from the width of their ties to the percentage of the tips they gave.

Few areas of life escaped Patterson's attention. If pepper harmed the lining of the stomach, then it was banned from the officers' dining room. If horsemanship helped to develop a sense of mastery, then all company executives would be roused before 6 for a morning trot.

Patterson's advice carried well beyond the confines of NCR. For years, he volubly advocated municipal reform in Dayton, an end to patronage, better schools and the building of parks. His admonitions were largely ignored. Finally, in 1907, when he learned that the railway spur he wanted would not be laid without bribes, Patterson decided to act. He convoked a meeting of a thousand local leaders, telling them, "Dayton is known now, and justly, too, I believe, as being the worst city in the state." He used a slide show to illustrate the city's ills—its dumps, its dying canal, its absence of amenities. Next, he displayed the faces of those he held culpable—many of them present—and calmly ticked off their misdeeds. Finally, the punishment: NCR would quit Dayton, taking its factory, its 3,800 jobs and its $4 million annual payroll to the East, where it would enjoy lower tax rates, better transportation and "have higher class visitors."

The *Dayton Daily News*—edited by James M. Cox, later governor and Presidential nominee—was reduced to ridiculing the affair. The paper ran a mock ad that announced a "Grand Meeting at the Glue Factory," complete with "hot tea and hot air."

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The ensuing feud was further complicated when Patterson's eccentricities prompted a split at NCR. The cause was Charles Palmer, a diminutive ascetic whom Patterson acquired in England, brought to Dayton as his personal trainer and placed on the company's board of directors.

Palmer claimed the ability to read faces. Intrigued, Patterson sought reports from him on his executives, a number of whom were subsequently fired. Palmer followed with a series of diet and exercise edicts, one of which banned certain foods—including bread and butter, tea and coffee, salt and pepper—from sales meetings. Hugh Chalmers, the NCR vice president, who had worked his way up from office boy, tried to have the order rescinded. Patterson fired him, along with most of the top sales executives.

The firings prompted fresh criticism in the press. Patterson responded with a slew of lawsuits. Then, ostensibly to gain time to pursue them, he shut down his factory, throwing thousands of workers off the job. The NCR president rode out the public furor. The jokes at his expense soured as those he'd idled remained out of work, placing a drag on Dayton's economy and giving Patterson the upper hand. More serious was the matter of Chalmers. The fired vice president departed vowing, "I will not be even with the old man till I put him behind bars." In the end, Chalmers, who went on to found the Chalmers Motor Car Company, would come within one natural disaster of succeeding.

Patterson, a contemporary said, "thought himself divinely appointed to make cash registers." The efficiency of his factory and the diligence of his sales force brought him the bulk of the cash register business, but he wanted all of it. In consequence, in Patterson's eye, a competitor was less an opponent than a transgressor. One of his approaches to competition was lordly. A competitor would be invited to Dayton, all expenses paid, to tour NCR and be overwhelmed by the strength of the giant he was challenging. Tours ended in the Historical, or "Gloom," Room, where cash registers built by then defunct challengers were piled; a buyout offer generally followed. Another approach was litigious. An opponent would be flooded with lawsuits to absorb his time, drain his treasury and disrupt his plans. "If a patent is granted to the Lamson Company," Patterson wrote in one case, "we will bring suit. If we lose, we will take it to the Court of Appeals. It will take five or six years of litigation and probably cost Lamson $100,000 before they would have a legal right to use" their invention.

But other approaches, if legal, were only marginally so. In 1901, Patterson, angered that small firms were making money selling secondhand NCR cash registers, set up a dummy operation to drive them from the field. Backed with a $1 million budget, it undersold, undermined and bought out competitors. Meanwhile, the in-house competition department at NCR tackled other manufacturers with specially trained representatives known as "knockout men." Standard tactics included the following: if a customer was considering purchase of a competing machine, a knockout man would claim that the machine violated NCR patents and that the retailer would end up in court; if a customer had already contracted for a machine, the NCR man would offer to cover the legal expenses involved in reneging on the agreement.

Such tactics outlasted all effective competition—in 1907, NCR claimed 96 percent of the domestic market. Such tactics also brought Patterson to federal court. In 1912, he and 29 NCR officials were indicted on three counts of violating the Sherman Antitrust Act. In court, Patterson encountered a familiar face: Hugh Chalmers, once his vice president, was now one of the government's key witnesses.

All defendants but one were convicted. In February 1913, Patterson was fined $5,000 and sentenced to a year in jail. Facing prison, he needed a reversal on appeal—or an act of God. He got the latter.

On the Monday following Easter, a Dayton newspaper reported that "it rained as if the windows of Heaven

By 1905, some 500 women worked at "The Cash." Exercise was part of their routine. Their aprons and sleevelets were issued by the company.

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In March 1913, floodwaters inundated the city of Dayton. In two days, NCR produced 275 flat-bottomed rowboats to aid in the rescue.

had opened," part of a continuing storm that dumped as much as 11 inches of rain. With the ground already sodden from melting snow, the water ran rapidly to the four tributaries that join at Dayton to form the Great Miami River.

At 6 A.M. Tuesday, John H. Patterson inspected the levees that rimmed the river and decided they would not hold. By 6:45 he had convened his executives. "Dayton will have an awful flood today," he told them. He ordered company carpentry crews to build rowboats and its commissary to bake 2,000 loaves of bread. He sent his purchasing agents out to scour the countryside for food, beds, clothing and emergency medical supplies. In 15 minutes he had reorganized his entire company to cope with a disaster that had not yet occurred.

The first crack in the levees occurred while that meeting was still in progress. At 8:30, a 350-foot section yielded with a rush, sending a wave of water 5-8 feet deep through downtown Dayton. City government collapsed, leaving Patterson, on high ground, supplies intact, as the de facto ruler.

By 10 A.M. the first of the 275 rowboats NCR would turn out were gathering the stranded from rooftops, taking them to the company compound for medical treatment, food, clothing and shelter. Several thousand slept in the factory; thousands more ate at a hastily erected tent city outside. NCR executives in other cities resupplied the effort, dispatching three relief trains in two days. One journalist wrote, "What Dayton might have done without John H. Patterson . . . can only be a matter of speculation, inasmuch as 'The Cash,' as they familiarly speak of it in Dayton, was for days the stricken city's brain, nerves, almost its food and drink."

Patterson, now 68, was entirely in his element—18-hour days of organizing this, instructing that, directing something else. The week had its ironies. The order formalizing Patterson's authority was signed by James Cox, his old opponent on the *Daily News*, now Governor of Ohio. Presidential representatives rushed to Dayton to offer aid to the recently convicted Patterson. In

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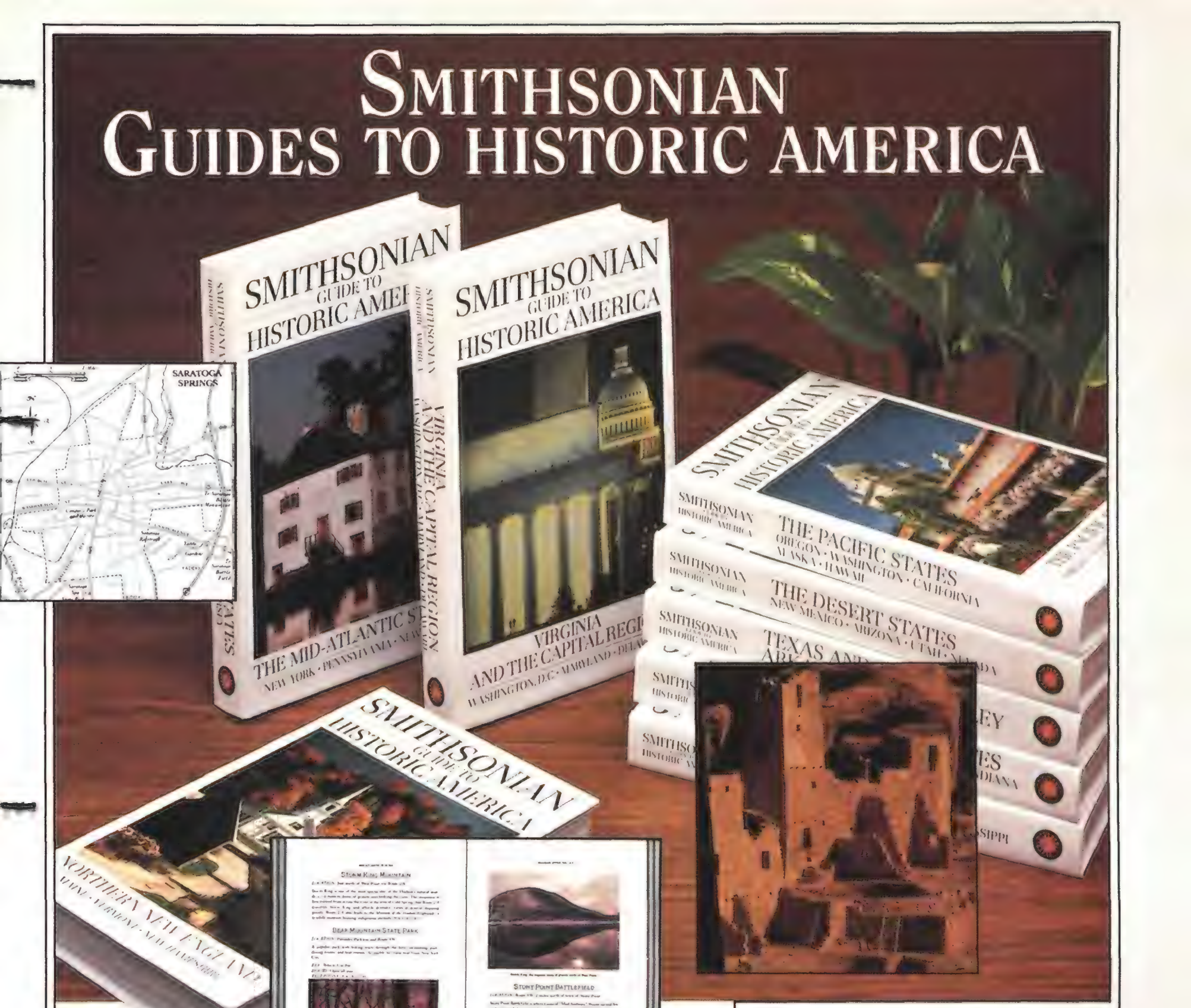
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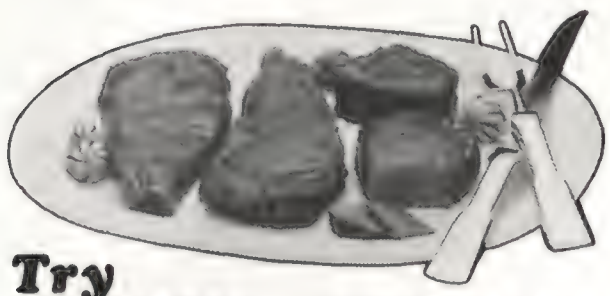

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all, the flood claimed more than 300 lives, destroyed property worth more than $100 million and made John H. Patterson a national hero.

Calls came for a Presidential pardon. Patterson disavowed the effort, wiring Woodrow Wilson, "I am guilty of no crime. I want no pardon." He was entirely unrepentant. Patterson's first telegram from the flooded city (sent to his New York office for transmittal to the *New York Times*) had announced that if the judge who presided at his trial set foot in Dayton, Patterson would throw him in jail. An NCR executive had discreetly destroyed the message.

There were three consequences of the flood, none surprising. First, Patterson led the campaign that raised $2 million to begin flood-control work. In all, NCR spent two-thirds of its 1913 profits on rescue and relief.

Second, in March 1915, the federal appeals court in Cincinnati overturned two counts of the antitrust conviction and remanded the third for retrial, which never took place. Patterson returned to Dayton to a cheering welcome, 20,000-strong.

And third. Within months, Patterson dismissed every single one of his codefendants. He blamed them, according to one report, for having "gotten me into this mess."

Subsequently, things quieted down. Patterson retained his energy, his suspicions, his drive to improve and—though he devolved the presidency on his son Frederick in 1921—most of his power. His business continued to prosper, and he continued to meddle. In 1922, at 78, he died. Already, the personalized rule that he represented was passing from the business scene, and in that, too, he had a hand.

Among those fired after the antitrust reversal was one who had been almost a favored son. He had headed Patterson's campaign to undersell secondhand dealers. He had risen to sales manager, and had lived in the house and driven the Pierce-Arrow that Patterson had bestowed. He was the executive in New York who had quashed his chief's first vituperative telegram following the flood. Fired, he left NCR vowing "to build a bigger business than John H. Patterson has." Which, at IBM—the very model of the modern corporation—is exactly what Thomas J. Watson did.

Having topped his flood-fund goal of $2 million, Patterson celebrates on Dayton courthouse steps with Katherine Wright, sister of Wilbur and Orville.

Slow road to glory

The Story of the Lands' End Rugby Shirt

by Red Mulcahy

We had high hopes for our original Rugby Shirt when we introduced it in 1980.

After all, it was heavyweight cotton. Not a bit flimsy. And darn good-looking too, with its jaunty stripes. (We called 'em Team Stripes, which we thought had a real ring of authenticity.)

So we mailed out our catalogs, and waited for the applause.

Setback Number One.

What we got was more like a sustained Bronx cheer. Our customers complained that our rugby shirts shrank too much. Up to 20%. Went in the dryer a Large, came out a Medium.

We were embarrassed. Took the shirts out of our catalog, and even wondered whether we should leave rugby shirts to the sporting goods companies.

But our feisty nature got the best of us. We went back to the drawing board and developed a preshrunk 100% cotton jersey fabric. A beefy fabric, 10.5 oz. versus the usual 5 to 9 oz. A fabric that reduced shrinkage to a tolerable 3%.

So far, so good. But we wanted to be sure our improved shirts were the real thing. Especially since about this time, lots of "rugby shirts" were appearing on the market that were really nothing more than colorful sportshirts.

We figured a "field test" was in order. And gave our shirts to the University of Chicago rugby team. (They happened to be close at hand.)

Setbacks Number Two and Three.

The results were disastrous. While our new fabric stood up, almost nothing else did. A particular problem was the two-piece placket, which the ruggers consistently tore asunder.

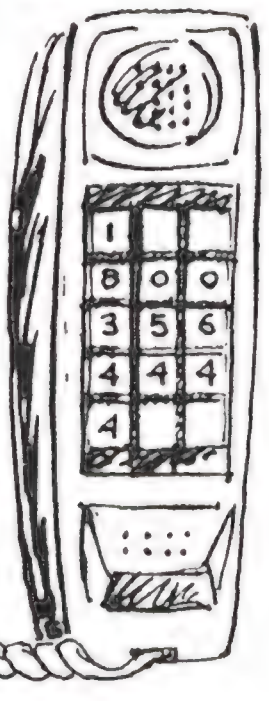
Again, we went back to the drawing board, and developed a more rugged continuous placket—all one piece, with no weak point.

Would this make our shirt tough enough for rugby? We decided to submit our latest shirts to the ultimate test—international rugby—giving them to the USA Eagles, America's national team. The biggest, toughest rugby players in the country. (Some of these guys were born with five o'clock shadow.)

OUR SHIRTS FAILED AGAIN! Seams came apart. Buttons popped off. In a Hong Kong match, one Eagle came off the field wearing nothing above the waist but a collar.

We went (no, we trudged) back to the drawing board. But this time, we had the help of the Eagles. We switched to stronger thread. Developed deeper biting seams. Beefed up our shirt at collar, placket. And added other indomitable (we hoped) features.

The Eagles took our shirts into action in June 1984 against Canada. And we held our breath.



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A Postscript...

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Book reviews

The Faber Book of Letters
Edited and with an introduction
by Felix Pryor
Faber and Faber, $18.95

And there were letters, real ones, once upon a time. Here, to remind us again as some good editor and perceptive ransacker of what is good does from time to time, is an anthology of letters in the English language, written for all of the good reasons people used to write them, between the years 1578 (from Sir Philip Sidney to Edmund Molyneux) and 1939 (Albert Einstein to F. D. Roosevelt).

Felix Pryor snares our attention at once in his introduction by assuring us that "most letters are very boring" and that "more are being written today than at any other time in history." Well, of course, *that* kind of letter, the kind you throw out or hope you could; missives. But here are letters, real ones, in which, as Pryor points out so well, the "sense of living presence can be so vivid as to be almost startling: Keats going for a walk in Winchester in the early autumn, Emily Dickinson on her sickbed, T. E. Lawrence wintering in a Yorkshire resort, Dickens at Chelmsford on a rainy Sunday morning . . . Tolstoy dying in the station master's house at Astapovo." It would be a great delight, Keats writes to his brother, to know in exactly what position Shakespeare sat when he wrote "To be or not to be. . . ." He himself is sitting at the moment with his back to the fire "at its last click . . . one foot rather askew . . . the other with the heel a little elevated from the carpet . . . These are trifles—but . . . Could I see the same thing done of any great Man long since dead it would be a great delight. . . ."

The letters here—all in their entirety, Pryor being sensibly diffident about editing Pope, among others of that rank—are largely by writers for the good reason, Pryor avers, that great letters are great literature. Many are not that but still particular. For example, here is Queen Elizabeth I keeping up with contemporary theater, the very latest. She writes to "goode Masterre William" complimenting him on his "prettye Verses" and asks that he come to call, along with "thye beste Actorres thatte thou mayste playe before oureselfe toe amuse usse bee notte slowe butte comme toe usse bye Tuesdaye nexte. . . ." How nice, you say, but Pryor informs us that the letter is an 18th-century fake (there being known only one piece of Shakespearean correspondence and this not it). It is the work of one William Henry Ireland, but nevertheless, a curious letter and of interest.

One of the virtues, the best one, of an anthology is that it enables us to prowl and pick around in order to be entertained, informed (the least important reason to read in an anthology), but mainly, it seems to me, to be delighted. And there is a great deal to cherish here. Browning writes to Elizabeth Barrett for the first time, months before they even meet: "I love your verses with all my heart, dear Miss Barrett. . . ." Little does Papa Barrett guess of the headaches on their way to him. And Carl Gustav Jung, the analytic explorer of the great subterranean human thread of unconsciousness, writing to James Joyce on his *Ulysses* that it had "presented the world such an upsetting psychological problem, that repeatedly I have been called in as a supposed authority on psychological matters."

The book, Jung goes on, is an "exceedingly hard nut," and has caused him no end of trouble, forcing him to brood over it for about three years "until I succeeded to put myself into it." But even so, he is profoundly grateful, he says, for what he learned. Still he doesn't think he will ever be "quite sure" if he enjoyed it because "it meant too much grinding of nerves and of grey matter. I also don't know whether you will enjoy what I have written about *Ulysses* because I couldn't help telling the world how much I was bored, how I grumbled, how I cursed and how I admired." The last 40 pages—a "string of veritable psychological peaches. I suppose the devil's grandmother knows so much about the real psychology of a woman. I didn't. . . . At all events you may gather from my article what *Ulysses* has done to a supposedly balanced psychologist."

Pryor hopes some of the letters will be "read and re-read" and that, occasionally, "the numinous" breaks through. Certainly. So many of these words are, after all, haloed. (Note: I do not mean hallowed. I mean haloed.)

Bennett Schiff
Board of Editors

Byzantium: The Early Centuries
John Julius Norwich
Knopf, $29.95

Byzantium has never had that good a press in the West and John Julius Norwich asserts that Western civilization has never adequately acknowledged the debt it owes to the "Empire of the East."

"Were it not for that great oriental bastion of Christendom, what chance would Europe have had against the armies of the King of Persia in the seventh century, or those of the Caliph of Baghdad in the eighth?" he now asks. "What language would we be speaking today and what god would we worship?"

Byzantium lasted a little more than 1,100 years. It was the keeper of the culture and traditions of classical Greece and Rome throughout the dark centuries after the barbarian invasions of the Roman empire.

Portrayed in Ravenna mosaic, Justinian was last Roman on Byzantine throne.

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However, except for specialized studies, there remains a profound gap in common Western learning about the long and tumultuous history of the Byzantine empire. Norwich's *Byzantium: The Early Centuries* is a chatty, gossipy, narrative history which attempts to help fill this void for the general reader.

It is also an ambitious enterprise, the first of three volumes covering the entire history of the empire until that fateful Tuesday in 1453 when Constantinople fell to the Turks.

The word "Byzantine" today is synonymous with the subtle diplomacies and cruelties of an exotic Eastern despotism. "Some of these Emperors were heroes, others were monsters; but they were never, never, dull," writes Norwich.

The author, whose earlier works include books on the Norman kings of Sicily, and the rise and fall of Venice, in this volume covers the founding by Constantine the Great of his empire in A.D. 330, and takes the story to the coronation of Charlemagne as Roman Emperor of the West on Christmas Day 800, and its implications for Byzantium.

As an emperor of Rome, Constantine's decision to adopt Christianity as the religion of the empire and to transfer his capital to Byzantium, a small Greek town on the Bosporus, makes him, says Norwich, one of the most influential men in history, after Christ, the Buddha and the Prophet Muhammad.

But although he took the titles "Equal of the Apostles" and "God's Vice-Gerent on Earth," Constantine waited until on his deathbed to be baptized. Edward Gibbon, who did much to denigrate the Byzantine empire as a betrayal of the best of ancient Greece and Rome, suggested the great emperor left baptism to the end to obtain the very latest expiation of his sins.

These included the murder in a bathhouse of Empress Fausta (his second wife) and the killing of his son Crispus, who may have been having an affair with Fausta. From then on the grim and bloody record continues, with tales of unsurpassed cruelty, and of mad and depraved emperors who themselves came to violent ends.

In the sixth century, for example, Emperor Tiberius Constantine was poisoned; his successor, Maurice, after watching four of his sons butchered, was killed and cast with them into the sea. And *his* successor, Emperor Phocas, a "depraved and sadistic monster," was chopped into pieces to make a "carcase fit for hounds."

This list of atrocities through the centuries at times makes heavy, repetitive reading. More absorbing are the campaigns the Byzantines such as Belisarius fought against the Vandals, the Ostrogoths, the Persians and the Arabs to preserve the mighty East Roman empire.

At the same time the Byzantines were mystics, obsessed with theology, who fought endlessly among themselves about the identity of Christ—even when the enemy was almost at the gates. And in the early centuries of the Dark Ages, Constantinople's wealth, luxury and architectural beauty, its craftsmen and artists, far surpassed anything in Western Europe. Its influence stretched to Venice, Ravenna, Sicily, Syria, Greece and Russia; and its jewel, the Church of St. Sophia, dedicated in 537, still stands today—though transformed into a mosque by the conquering Turks.

For the 470 years covered in this volume Constantinople stood alone as the new Rome. But the crowning of Charlemagne by the Pope in Rome ended the Byzantine empire's primacy in Europe, and changed it into a rival Eastern state to continue—powerful, if not supreme—for another six and a half centuries.

Richard Beeston
Washington correspondent

The Studios of Paris: The Capital of Art in the Late Nineteenth Century
John Milner
Yale University Press, $39.95

Delacroix, Manet, Renoir, Toulouse-Lautrec, Rodin, Seurat, Degas, Matisse and thousands of other French artists, many penniless then and still unknown, had studios in Paris. Foreigners such as Sargent, Whistler, Chagall and Miró felt they had no choice but to rush there. From the mid-19th century to the mid-20th century, almost all artists looked to Paris as their mecca.

In this unusual and carefully illustrated book, John Milner, head of the Department of Fine Art at the University of Newcastle upon Tyne in England, describes how French tradition and government policy, along with Parisian commerce and practical necessity, combined to create a kind of factory of art in Paris in the 19th century.

The former royal palace of the Louvre, transformed into a museum after the revolution, loomed over the Seine, crammed with masterpieces that

Artist's model traded lyre and pose for cigarette and moment of relaxation.

students could behold in awe and try to copy. Intent on maintaining the tradition of the art of the Louvre, French governments set down the requirements of apprenticeship and the standards of the profession, as well as many of the rules of the marketplace. Officialdom also created the Academy of Fine Arts, which ruled the profession and tried to decree taste; and funded the School of Fine Arts (the famed Beaux-Arts), which prepared students with its exacting methods. It mounted great international fairs, sponsored the annual salons that exhibited and sold art, purchased a good deal of the work for its own museums and offices, and showered artists with decorations such as the Legion of Honor.

A lively commerce developed around this official encouragement of art. Established artists earned substantial extra income with private classes that prepared students for the School of Fine Arts. Immigrants, mainly from Italy, milled about the courtyard of the school in search of work as nude models. Numerous dealers came forward to sell the enormous output of so many artists. Printers popularized art by selling reproductions of the latest work of the best-known artists. A legion of critics filled the columns of the many newspapers of Paris with a wit that could wither or fashion reputations. To accommodate the mass of artists, entrepreneurs built studios throughout the city, ranging from luxurious quarters by the Monceau park to modest, sunny rooms in Montparnasse.

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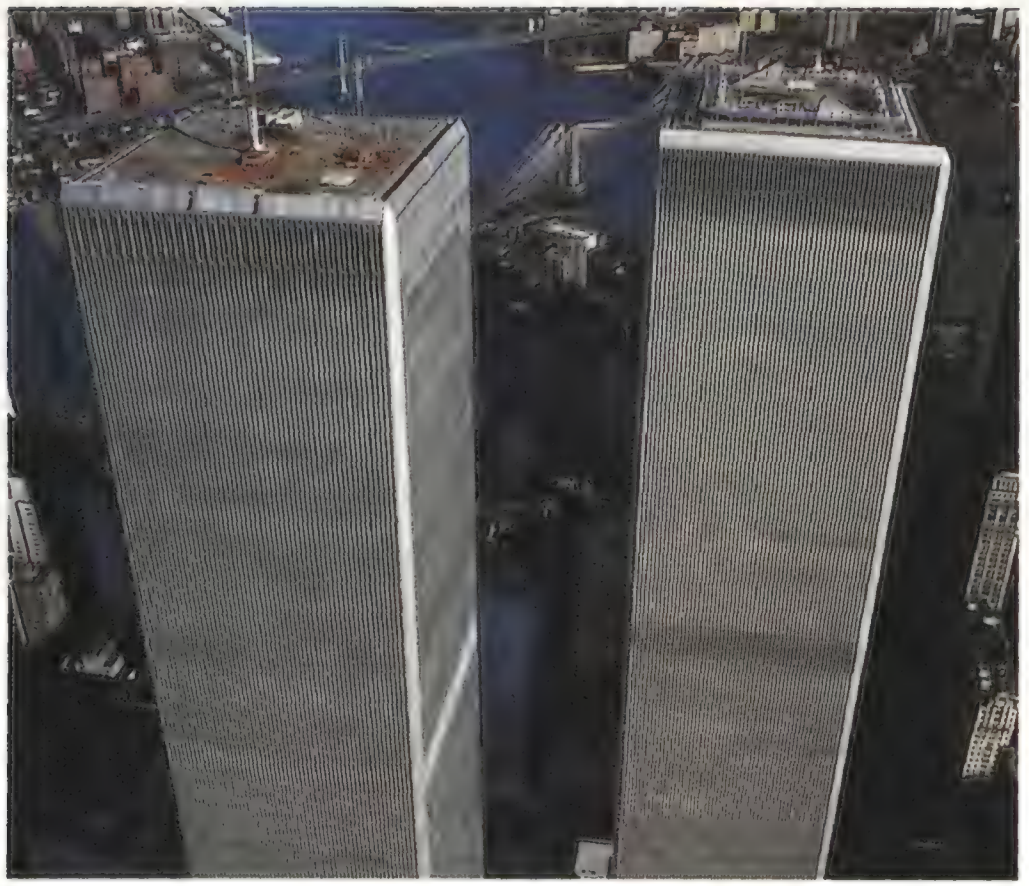

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On top of all this, artists had the joy of the city of Paris to enhance their work. "The streets of Paris . . . were unsurpassed as a source of both inspiration and opportunity. The studio was part of the street and the street part of the studio. The relationship was symbiotic."

The professionalization of art reached its climax in Paris in the 1880s and '90s, and Milner concentrates on those years. The titans then are little noted now. Jean-Louis Ernest Meissonier was perhaps the most popular and powerful painter of that era. At a time when any struggling artist would be satisfied to sell a painting in Paris for 50 francs (enough to live on for two or three days), Meissonier could sell one for 840,000 francs.

The system had grown too rigid by the final decades of the last century. Impressionists and Post-Impressionists, who had learned their trade through the system, were rebelling against the exacting rules that seemed to stifle creativity. One could learn painting in the schools of Paris, they insisted, but not art; their contempt belittled the classes, the academy and the salons. The system eventually collapsed, crushed by the genius it had nurtured. For decades, however, at least until World War II, young artists still rushed to Paris, if not for training then at least to feel the fever and tradition of the capital of art.

Milner, in the second half of his book, guides the reader through the studios of the late 19th century. Since the city really has changed very little in a hundred years, most of the studios, from the sumptuous to the lowly, still exist; many serve as living and working quarters for artists even now. Milner is a dry and academic guide, but the tour is still fascinating.

Stanley Meisler
Former Paris correspondent
of the *Los Angeles Times*,
now based in Washington

The Necessity of Empty Places
Paul Gruchow
St. Martin's, $17.95

The prose poem emanating from a wilderness trek or canoe trip has become a staple of contemporary American belles lettres. Its practitioners include such artful essayists as Edward Hoagland, Annie Dillard, Edward Abbey and Barry Lopez—and a host of less skillful rhapsodists. What separates the masters from the rest of the wild pack is not just

the scintillation of their styles but also their ability to think about wilderness, to consider Man's place in nature.

Minnesota writer Paul Gruchow is possessed of these qualities. In this collection of essays set primarily in Minnesota, Nebraska and Wyoming, with a foray into Montana, he conjures up lovely images with apparent effortlessness. Here is a memorable night spent outside: "The whiteness of the tent reflected the rays of the moonlight filtering through, and it was warm and cozy in their glow; I imagined that I was sleeping in the glass bowl of a lantern."

He can also discern significance in landscapes. He carries one step further William Least Heat Moon's affection for "blue highways" (the sub-Interstates generally indicated in blue on maps). In a paean to country roads, Gruchow notes how they accommodate the terrain rather than bull their way through it according to specs laid down by civil engineers. The upshot is that the backroad traveler moves through, not past, the land and may experience it more profoundly than the highwayman.

Gruchow is also a seer. By that I mean he has trained himself to look both at and into the way the world presents itself. For example, even the most cloddish visitor to the Great Plains can't help being struck by the deep-blue skies that roof the region. His visual acuity and inquisitiveness spurred Gruchow not to let the matter rest there.

In an essay called "Approaching the Mountains" he reports the results of his follow-up. "The higher you go, the thinner the atmosphere becomes. . . . The thinner the atmosphere, the less the color in light is captured or refracted by the particles of dust or moisture in it. . . . This explains the depth and clarity of the light at upper elevations. And dust particles are more efficient than droplets of moisture at . . . reflecting the relatively short, weak rays of blue in sky-light; in dry places, more particles are held in the upper atmosphere, and the sky takes on a deeper intensity of blue than it does in the moist lowlands or along the seacoasts." High and dry, the Great Plains bask in an atmosphere that, according to Gruchow, is paradoxically both dusty and brilliant.

So careful is his scrutiny, so painstaking the research he pursues back home, that it comes as a shock when he begins one essay by confessing, "I should not have been so impatient." Impatient, that is, to set foot on the trail to the heart of the Beartooth backcountry of south-central Montana. Because he arrived in Cody after the Forest Service office had closed for the weekend and local outfitters had run out of maps or had also closed, he failed to secure an adequate map and got lost.

At this point Gruchow segues into a meditation on lonesomeness, followed by a chapter paying tribute to solitude in the wilderness, before closing with a transcendental quotation from one of his literary predecessors, Joseph Wood Krutch. It's a pip of an essay, one of several fine ones in the book.

The Necessity of Empty Spaces redresses the relative neglect in which other writers had left the territory it covers. There is an irony here. In writing about his empty places, Paul Gruchow has filled them—with things that leave them intact: insight and affection.

Dennis Drabelle
Washington writer

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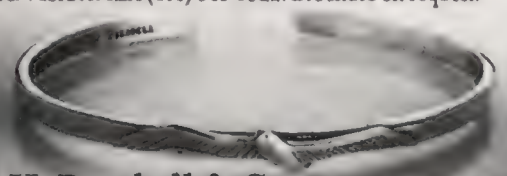

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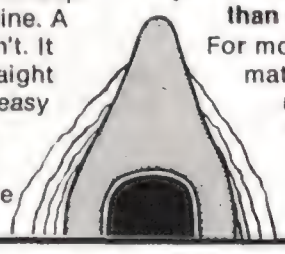

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Additional reading

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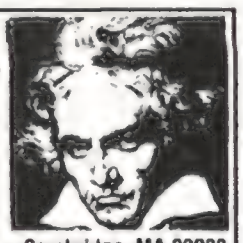

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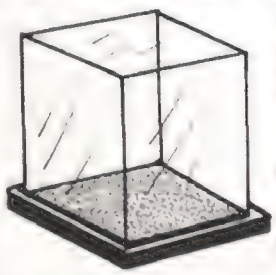

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The Castle, under renovation for the new Information Center, is closed to visitors until late summer. The Freer Gallery of Art is closed until 1992.

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Special June exhibits and events

National Museum of African Art
Gold of Africa: Jewellery and Ornaments from Ghana, Côte d'Ivoire, Mali and Senegal (through August 28) See *Highlights continued*, page 180.

Sounding Forms: African Musical Instruments (through June 18) First exhibition to be devoted to these instruments as sculpture.
The Essential Gourd: (June 20-January 4) Northern Nigerian decorative techniques new and old.

Anacostia Museum
The Real McCoy: African-American Invention and Innovation, 1619-1930 (May 21-November 5) An overview of black inventors and anonymous innovators who made important contributions to American technology.

International Gallery, S. Dillon Ripley Center
Caribbean Festival Arts (June 3-February 15) An exhibit of costumes, music, videotapes, photographs and performers re-creates the Caribbean street festival.

National Museum of American Art
The Art of Paul Manship (through July 23) An American master rediscovered.
Photography of Invention: American Pictures of the '80s (through August 13) Images by 90 experimental practitioners.

Arthur M. Sackler Gallery
Yani: The Brush of Innocence (June 25-October 22) Paintings by the internationally renowned 14-year-old artist.
Timur and the Princely Vision: Persian Art and Culture in the Fifteenth Century (through July 6) Painting, ceramics, illuminated manuscripts created by the artisans of the Timurid dynasty.

National Portrait Gallery
Isamu Noguchi: The Portrait Sculpture (through August 20) The first retrospective look at the artist's representations of subjects from George Gershwin to Clare Boothe Luce.
The First Federal Congress (through July 23) A 200th-birthday commemoration featuring portraits, memorabilia.

National Museum of Natural History
Orchid Illustrations by Regina Olson Hughes (opens June 30) Botanical drawings by the illustrator and artist.
John Muir's High Sierra: A Watercolor Diary by Tony Foster (through August 13) The Cornish artist's images, painted during an eight-week hike in 1986.

Hirshhorn Museum & Sculpture Garden
Robert Moskowitz (June 21-September 17) The first major retrospective on the New Image painter.

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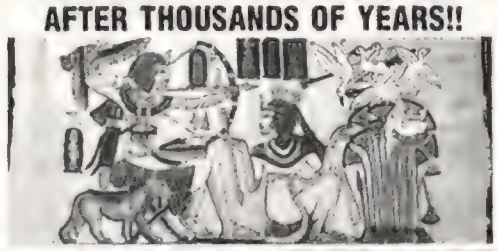

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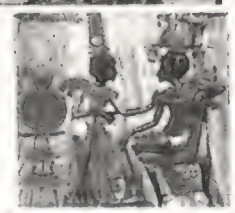

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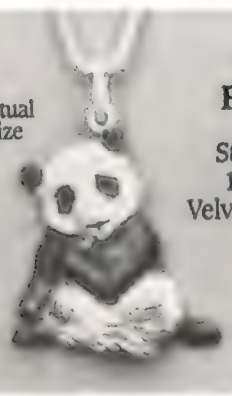

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Directions: Ericka Beckman (through July 23) Sound-and-light installation with photographs, showcasing the work of the New York filmmaker and sculptor.
Buster Simpson "WORKS" (through July 23) An outdoor commission by the Seattle-based environmentalist-artist.

National Museum of American History
American Television from the Fair to the Family, 1939-1989 (through April 1990) Artifacts tracing the rise of television in American culture. See page 82.
Sesame Street (June 20-August) Twentieth-birthday exhibit.
The Way to Independence: Memories of a Hidatsa Indian Family, 1840-1920 (through September 30) A chronicle of the American Indian experience.

National Air and Space Museum
Aeropittura Futurista: Images of Flight in Italian Art, 1913-1942 (opens June 16) Perceptions of flight through the lens of Italian Futurism.
Beyond the Limits: Flight Enters the Computer Age A major new gallery explores the computer revolution.
Hubble Space Telescope A full-scale test model of the telescope that will be launched aboard a space shuttle.

Cooper-Hewitt Museum (New York)
L'Art de Vivre: Decorative Arts and Design in France, 1789-1989 (through July 16) Objects created by French artisans, displayed in celebration of the bicentennial of the French Revolution.

Renwick Gallery
The Boat Show: Fantastic Vessels, Fictional Voyages (through August 6) Renditions of fanciful ships by 15 contemporary American artists.
Bound to Vary: Billy Budd, Sailor (through August 6) Unique handmade bindings for a limited edition of Melville's classic.

Exhibition catalogs

Catalogs available currently include:
Gold of Africa (paper, $33; cloth, $50)
Paul Manship (paper, $24.95; cloth, $50)
Caribbean Festival Arts (paper, $25.95; cloth, $39.95)
The Way to Independence: Memories of a Hidatsa Indian Family, 1840-1920 (paper, $24.95; cloth, $40)

To order, send check or money order to Museum Shops, Box 44083, Washington, D.C. 20026-0083. Include 15 percent of total purchase to cover postage and handling (minimum, $1.75).

Smithsonian on the air

Radio Smithsonian: Features include stories on scientist James D. Watson, master drummer Baba Olatunji and an exhibition on clothes in our culture.
Here at the Smithsonian: Three-minute presentations take you behind the scenes.

To find out what stations in your area carry these programs, write: Office of Telecommunications, MAH Room BB40, Washington, D.C. 20560.

Lecture and Seminar Program

The program hosts events in Columbia, South Carolina, and in Los Angeles during June.

For information on offerings around the country, write to the Lecture and Seminar Program, 1100 Jefferson Drive S.W., Room 3045, Washington, D.C. 20560; or call (202) 357-1350.

Resident Associate Program

To become a Resident Associate, or for fee and ticket information, call 357-3030. Here are some June events:
Pioneers in Photography: An Evening with Beaumont Newhall (June 6; 8 P.M.) A slide-illustrated lecture by the renowned historian-photographer.
Old Story Time (June 9, 10, 11; 7 P.M.) Three performances of Jamaican playwright-director Trevor Rhone's play.
Record Sales in the Art Market (June 13; 6:30 P.M.) Sotheby's Lucy Mitchell-Iness on some recent benchmark sales.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here are some June exhibits:
Athens, Georgia (June 24-July 23) *Spectacular Vernacular: Traditional Desert Architecture of West Africa and Southwest Asia,* University of Georgia, Tate Student Center.
Boise, Idaho (June 20-August 6) *Threadworks: Miniature Textile Art,* Boise Art Museum.
Boston, Massachusetts (June 17-September 10) *King Herod's Dream: Caesarea on the Sea,* Boston Museum of Science.

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Exquisitely worked pieces of this kind, testament to the genius of 19th- and 20th-century goldsmiths, began to attract the Swiss collector Josef Müller during the 1930s. In later years, Müller's daughter and son-in-law avidly augmented his holdings for the Barbier-Mueller Museum in Geneva. More than 200 objects from their unique collection, traveling for the first time in the United States, are represented in "Gold of Africa: Jewellery and Ornaments from Ghana, Côte d'Ivoire, Mali and Senegal" at the National Museum of African Art.

The show, curated by Timothy F. Garrard and circulated by the American Federation of Arts, remains at NMAfA through August 28 before moving on to New York, Dallas, Birmingham, Tampa, Chicago, Detroit, Indianapolis and Louisville.

Kathleen M. Burke

Mudfish sword ornament (top), finger rings are work of Ghana's Akan smiths.

Triangle-pierced pendant is a product of Côte d'Ivoire.

A gold-leaf *sankofa* bird tops this carved Akan staff.

Côte d'Ivoire-crafted necklace shows the traditional disk-rectangle patterning.

Akan swords, their iron blades left unsharpened, are for ceremonial use.

Thin-wire filigree ring, bracelet, necklace are Senegalese-made.

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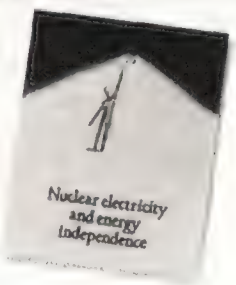
For a free booklet on nuclear energy, write to the U.S. Council for Energy Awareness, P.O. Box 66103, Dept. SN06, Washington, D.C. 20035.



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The Smithsonian Traveler

THE LATEST WORD ON TOURS, EXPEDITIONS AND LEARNING ADVENTURES,

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To receive The Smithsonian Traveler, *a semiannual (January and June) newsletter with a complete listing of upcoming programs, write to the address below.*

You'll learn more about tours, seminars and expeditions as well as the people who participate in them. Programs—for every taste and budget—are versatile and imaginative.

A Special Invitation

Enjoy a Washington "Anytime" Weekend: Announcing addition of the elegant Watergate Hotel. Make your reservations today with VISA or MasterCard.

Domestic Study Tours

Smithsonian Sampler *June 30-July 2*: Highlights museum tours and lectures.

California—Big Sur to Yosemite *July 13-22 or September 13-22*: Easy scenic hiking.

Colorado Rockies *August 5-11*: Secluded retreat offers outdoor studies program.

Take Me Back to the Ball Game *August 7-13*: Baseball buffs attend games at historic stadiums in Chicago, Detroit and Cleveland.

Pacific Northwest *August 15-26*: Seattle, Vancouver, Victoria, San Juan Islands.

The Old West *August 16-25*: From the Black Hills to the Tetons. Includes the Crow Fair.

Grand Canyon *August 18-27*: New section of this raft trip added by popular demand.

NEW **Romance of the Gold Rush** *September 2-9*: From Sacramento to San Francisco, sail aboard the tall ship *California*.

White Mountains of New Hampshire *September 11-20*: A hiking experience.

NEW **Detroit Auto Barons** *September 14-17*: Visit their estates and a modern factory.

NEW **Brooklyn with a Bang** *September 14-17*: Includes *Jerome Robbins' Broadway*.

Appalachia *September 15-23*: Kentucky artists and writers introduce mountain heritage.

NEW **Columbia River Cruise** *September 21-30*: Sail from Victoria along the coast to Portland and up Columbia to Snake River.

Bryce, Zion and the North Rim *October 4-13*: Moderate hikes for outdoor enthusiasts.

San Antonio-Austin *October 7-14*: Discover a rich mix of Hispanic and Anglo cultures.

Okefenokee *October 31-November 5*: Canoe in a wildlife refuge; for novice or expert.

Foreign Study Tours

People's Republic of China Tours in 1989 for new and repeat travelers; new itineraries include recently opened destinations.

NEW **England for Families** *July 10-20*: Storybook London and the Cotswolds for families with children, grandchildren (ages 7-14).

Iceland *July 22-August 6*: Circle the island, study natural history, geology.

Baltic Passage *July 28-August 15*: Cruise to Denmark, Sweden, Finland, Leningrad.

NEW **Lena River-USSR** *July 28-August 16*: Exclusive cruise through Siberia.

NEW **Voyage to Sumatra and Java** *August 1-17*: Visit Singapore, Jakarta, Borobudur.

Austria by Train *August 3-16 or 17-30*: From Vienna to Graz, Badgastein and Innsbruck.

Kenya Wildlife Safari *August 3-20*

Trinity Seminar *August 11-26*: Study rare books, ancient manuscripts in Dublin.

Voyage to Greenland and Hudson Bay *August 19-September 4*: Cruise to the Arctic Circle —natural history, Inuit culture.

Mongolia *August 20-September 18*: Explore the exotic land of Genghis Khan.

Heart of Asia *August 30-September 25*: Traverse the USSR and China along the old Silk Road.

Himalayan Kingdoms *September 1-22*: Explore the fascinating world of Ladakh, Nepal and Bhutan.

Canadian Rockies *September 6-17 or 19-30*

Indonesia *September 7-28*: In-depth look at Sumatra, Java and Bali.

Gardens of Ireland *September 10-24*

Yugoslavia *September 12-24*

Iberian Ways *September 12-26*: Trace the history and culture of Portugal and Spain.

Ireland Walks *September 14-26*

Seine Cruise *September 15-28*: Explore treasures of Flanders, Normandy and Paris.

Oxford Seminar *September 16-30*: Smithsonian's 11th year at this historic university.

Edinburgh and the Scottish Countryside *September 17-30*

Greece-Turkey *September 27-October 9*: Cruise on the *Sea Cloud*.

Orinoco-Amazon Voyage *October 1-19*: For Contributing Members.

Gardens of Italy *October 4-15*: Botanical showplaces from Lake Maggiore to Vicenza.

Japan Journey *October 7-19*: Cultural overview in Kyoto, Tokyo and the countryside.

Australia-New Zealand *October 22-November 14*: Natural history, native culture.

Mexico-All Souls' Day *October 26-November 8*: Observe village celebrations, customs.

City Interludes Excursions to great and historic cities in their off-season splendor. Ten days in Paris, London, Venice, Vienna, Barcelona, Lisbon, Prague or Kyoto.

Argentina *November 12-27*: Explore fantastic natural and historical diversity.

Egypt Seminar *November 14-December 1*: University lectures in Cairo and a five-day Nile cruise to sites from Aswan to Luxor.

Fiji *November 18-30*

Smithsonian Christmas Holiday in Canterbury, Winchester or Switzerland.

Siberian Winter Odyssey *January 10-27*

South America Voyage *January 17-February 4*: From Santiago, cruise south to Patagonia and around Cape Horn to Buenos Aires.

India Wildlife Safari *January 23-February 20*: View rare species of birds and animals.

Kenya-Tanzania Wildlife Safari *January 25-February 11*: A unique journey to East Africa.

Mesoamerican Study Programs *January and February*: Yucatán, El Tajin or Guatemala.

Write to Smithsonian National Associate Program, Washington, DC 20560 or call (202) 357-4700 for tour brochures, (202) 357-1350

Smithsonian Seminars

Join fellow Associates who share your special interests. Take part in seminars with Smithsonian curators and guest experts.

Oshkosh, Wisconsin *September 21-24*
Learn techniques of aircraft restoration during lectures and hands-on workshops led by specialists from the Air and Space Museum and the EAA Air Adventure Museum in Oshkosh.

Santa Fe, New Mexico *October 10-15*
Study Hispanic, Indian and Anglo art or learn about archaeological discoveries in the Southwest during sessions taught by Smithsonian faculty and local scholars.

Research Expeditions

Contribute your time, talent and financial resources to Smithsonian research. Work with curators at Washington, D.C. museums and archives, or at field sites around the country and the world.

British Enterprises in the New World
London *June 18-30*
Conduct research on British colonization of the Caribbean in London's libraries and museums for a new exhibition.

Creating Aerospace Curricula
Washington, D.C. *July 9-21*
Using galleries at the Air and Space Museum for inspiration, teachers (K-12) help education staff develop innovative curricula for school groups.

Air and Space Archival Treasures
Washington, D.C. *July 23-August 4*
Help archive historic documents and films at the Air and Space Museum and at the Paul E. Garber Facility.

Dynamics of an Active Volcano
Costa Rica *October 1-13 or 15-27*
Monitor Arenal Volcano's eruptions and study their effect on surrounding rainforest vegetation.

Expeditions for 1990 Watch this column for details. Participate in archaeology fieldwork on the Caribbean island of Montserrat or in Zaire. Or assist curators with archival research at the Air and Space Museum or with collections storage at the Museum of Natural History. Another project is to help document the Crow Fair or Smithsonian's Folklife Festival.

for seminar and expedition brochures.

One of the nicest vacations this year is a trip to Iceland where nature unfolds the unforgettable beauty of The Midnight Sun.

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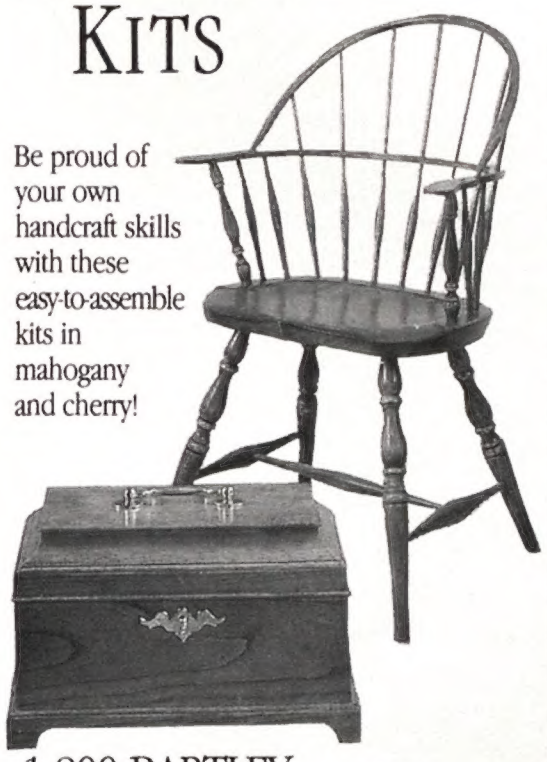

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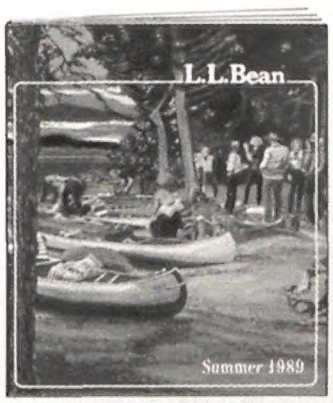

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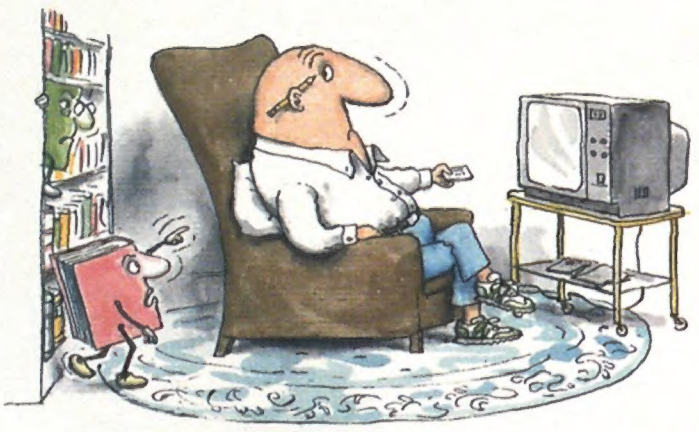
By Bruce Watson

The night The Forsyte Saga *struck back*



The other evening, sitting by my neglected bookshelf, I began to indulge in my favorite nonreading hobby. Lacking time to read, I frequently search the backs of books until an "About the Author" reveals a writer who accomplished less than I have at my age. This has grown increasingly difficult with the years, but on that particular evening it became dangerous.

"E. M. Forster was born in 1879," I read, "long before *you* even had a chance to fall so far behind in your reading." I blinked. I read it again. Was this book referring to me? "That's right, bright boy, you heard me. Forster died in 1970 and is best known for a series of novels portraying the mores of Victorian society, none of which you've ever read or ever will, given your lightweight approach to serious literature."

My God, I thought. It's happened! Books have assumed the role of my mother. Hesitatingly, I picked up another and paged through to the bio in the back. "Virginia Woolf was born in London in 1882, as if *you'd* care. You've never read a single word of this talented member of the Bloomsbury group, an elite group of early 20th-century intellectuals. Been meaning to read more, I suppose? So, what were you doing glued to the tube last night until midnight? Eh? Eh?"

I slammed the book shut. Could it be? Not only were they scolding me, but from their prim perches high on the living room wall, my books heard, they saw, they knew! I suddenly felt alone before shelves of accusers. Dickens, Hardy, Thoreau, all staring at me.

"I really have been meaning to read more," I said. "I swear it. But you dead authors can't imagine how frazzled our lives are these days. Work, jogging, relationships. Who has time to read?" I poured out my confession. Would they listen? Forgive? I turned to another book. Light fiction by a living author, I decided, might be less judgmental.

"Stephen King began writing short stories as a child and wants to know why you are the only person in America who hasn't read him. Since the publication of his first novel, *Carrie*, which you didn't even watch on TV, he has sold millions of paperbacks. You own two, but have you read them? No!"

I felt horrible. No, I hadn't even read Stephen King. And he knew it. And he hated me. What to do? I could change my life, devote an hour—or even two—to daily reading. But where would I get such an hour? All the while the books, brightly colored, name upon name, watched like so many inquisitors. How to fit literature into the laundry list of errands that was my life? Finally, as my mother and several authors had always advised, I decided to turn to the books themselves for help.

I'll begin tomorrow, I thought. Tomorrow I will rise before dawn and seek literary adventures. I will read. I even said it out loud: "Tomorrow." I reached for the TV remote control. A book flew off the shelf, striking me below the belt. I picked it up.

"Edgar Allan Poe was born in Boston in 1809. His first work, 'Don't Touch That Dial!' was published when he was quite young. Subsequent works were largely ignored by the public. Afflicted by alcoholism and a desperate longing for acceptance, Poe moved from city to city but *he* still found time to read. Just before his untimely death he published 'The Painful Death of B. Watson, Non-reader' which. . . ."

"Villains!" I shrieked. "I admit the deed! I'll read! I'll read!" I frantically scanned the Poe, but found only the usual tales of horror and the supernatural. A trick. Well, I would not be tricked into literacy. "Tomorrow!" I shouted. Was I going crazy? With a cautious eye on the shelf, I flipped on the TV.

I was well into *Cagney and Lacey*, when I looked to my left. *The Forsyte Saga* was creeping over the arm of the sofa. I watched helplessly as the boxed set inched closer, leaning from side to side and nodding suggestively. I hesitated, then bit and opened a volume.

"John Galsworthy was born in Surrey, England, in 1867. But forget about that for now and listen. In the growing American tradition, you have closed your mind. You come before this court as a slayer of the humanities, a pimp for the cheap harlot called Ignorance. How do you plead?"

Cagney was telling Lacey that there was a criminal on the loose, a clever womanizer who seduced female cops.

"How do you plead?"

I hung my head. "Guilty," I said at last. I looked at the book again.

"Galsworthy is best known for a series of novels called *The Forsyte Saga*, which tell the story of a well-intentioned young man who wanted to read more but frittered away his time on neglectful women, TV and substance abuse. . . .

"Pick up a book."

I picked up Stephen King.

"No. Not that one."

I grabbed the Forster.

"That's better. Now read. You heard me, young man. Read. Lower your eyes. Let your body relax, and begin."

" 'The Signora had no business [redacted] it,' said Miss Bartlett. . . ."

A great sigh arose from the tower of literary figures perched behind me.

They never wanted to hurt me, I realized. But an author can only take so much neglect, even if he is best known for a series of novels portraying the mores of Victorian society . . .

"What, reading 'About the Author' again? Get back to that first page!"

". . . rooms with a view. . . ."

"And stay there!"

An hour a day. Maybe two. I swear it.

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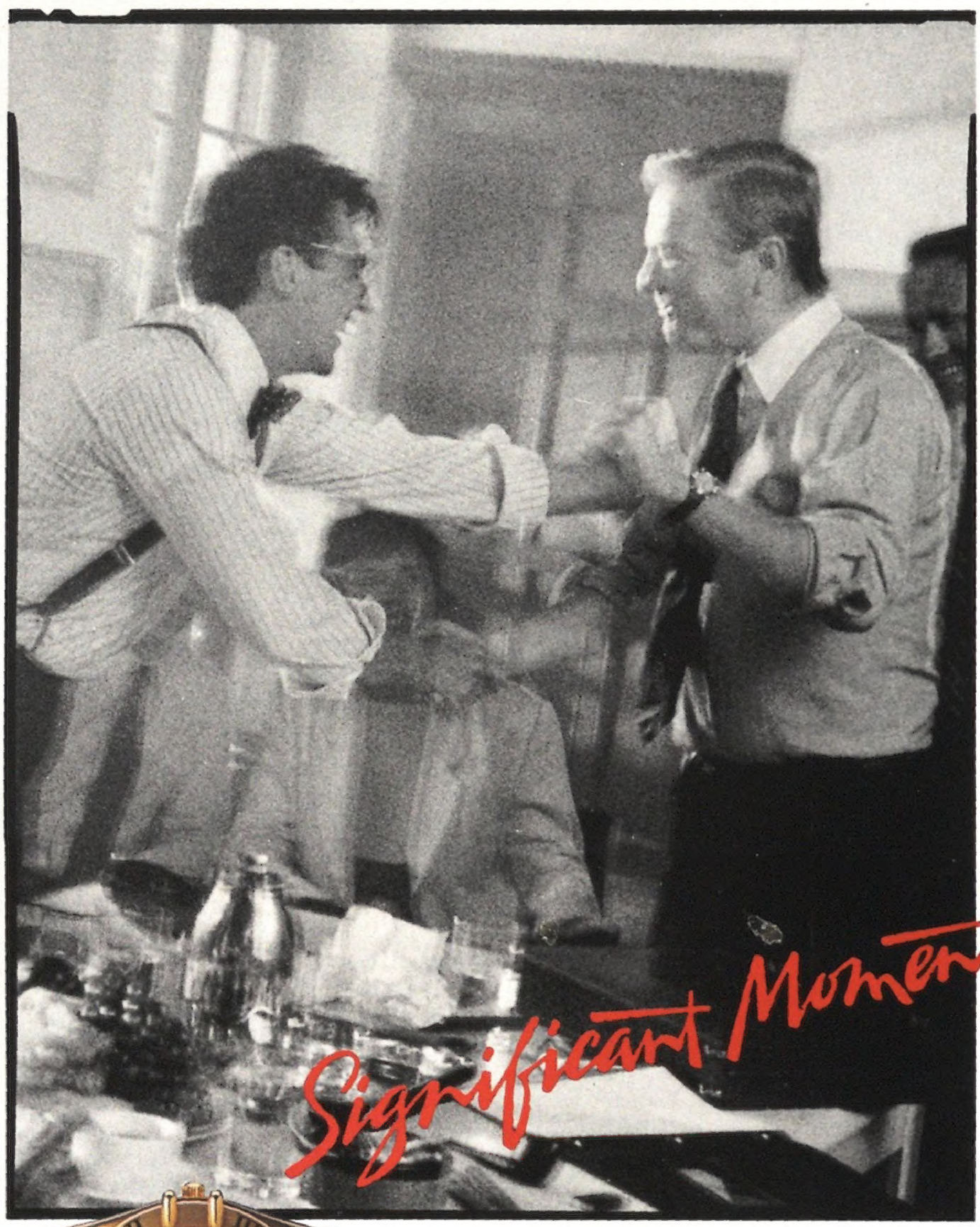

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